

REPORT
ON THE
HEALTH OF THE CITY
OF
BIRMINGHAM,
FOR THE YEAR 1890,
ALSO,
ON THE PROCEEDINGS TAKEN UNDER THE ACT FOR THE
PREVENTION OF ADULTERATION

OF ARTICLES OF FOOD AND DRINK,

BY
ALFRED HILL, M.D., F.I.C.,

Past-President of the Society of Medical Officers of Health;

Past-President of the Society of Public Analysts;

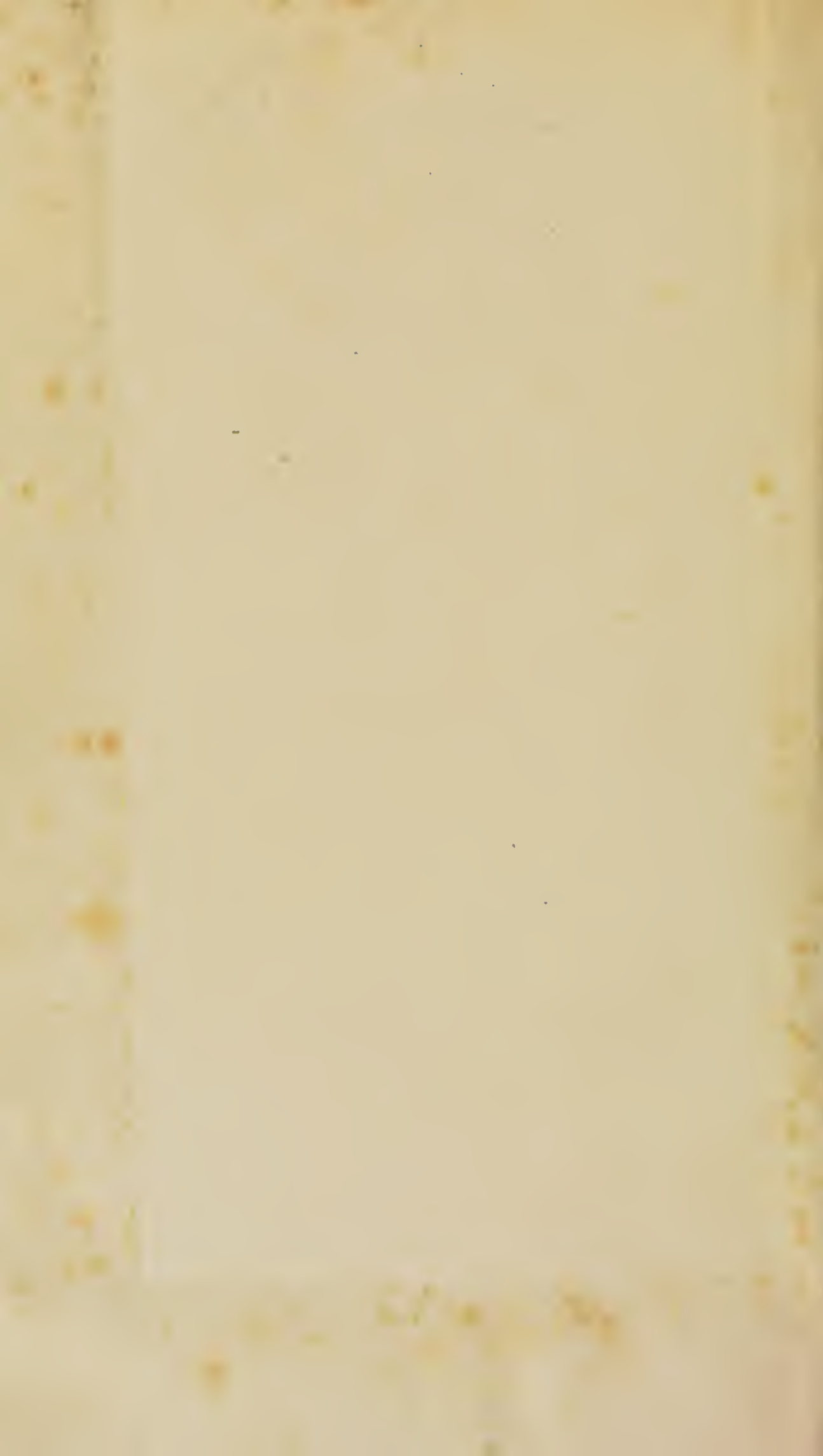
Examiner in Public Health to the University of Aberdeen;

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MEDICAL OFFICER OF HEALTH AND ANALYST TO THE CITY.

PRINTED BY ORDER OF THE HEALTH COMMITTEE.

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HEALTH DEPARTMENT,

THE COUNCIL HOUSE,

Birmingham, March 6th, 1891.

TO THE HEALTH COMMITTEE.

MR. CHAIRMAN AND GENTLEMEN,

I have the honour to submit my Annual Report for the year 1890—the eighteenth—and in doing so to make a few preliminary observations of a general character. Introductory
Remarks.

The Marriage-rate continues to rise, which is gratifying, because it may be confidently accepted as a proof of commercial prosperity.

The Birth-rate, however, continues low, and is lower than I have ever recorded it previously. For the first time it is below 30 per 1,000.

It is to be observed that the Death-rate all over England—Birmingham included—is higher than usual. For the City it is higher than any year since 1884, since which time it has never till 1890 exceeded 20 per 1,000. The increase of mortality is due partly to the diseases of childhood—Scarlet Fever and Measles—and partly to respiratory diseases, particularly Bronchitis, which occur largely in the periods of adult life and old age.

The Zymotic-rate must be regarded as satisfactory, and especially when compared with the mortality from all causes.

The Scarlet Fever epidemic, which has extended to the extraordinary length of seven years, has subsided to a comparatively low level, and there is reason to hope that it is now finally declining.

Small-pox has been entirely absent, no case having occurred for two years and no death for more than three.

Diphtheria is showing a slightly upward tendency, but this may possibly be due to the influence of the Notification of Infectious Diseases Act, which came into operation near the beginning of the year, and naturally brings to notice more cases of disease than before.

I. VITAL STATISTICS.

Population.

The Population of the City at the middle of the year 1890 is estimated by the Registrar-General at 461,865. This figure is obtained by assuming that the rate of increase which held during the last intercensal period has continued unchanged since the taking of the census in 1881. It seems to me, however, very doubtful whether this assumption is correct, and if it is not, then the estimates of population for the last nine years have been inaccurate. There is, however, no other satisfactory way of forming such estimates, and I am therefore compelled to use the figures obtained in the manner alluded to.

Natural Increase

The excess of Births over Deaths registered during the year, which constitutes the natural increase of population, disregarding the effects of migration to and from the town, is only 4,515, or 0·98 per cent. of the population, against 1·24 in 1889, and 1·30 in 1888. The cause of this reduction in the natural increase is to be found in the augmented mortality of the year, together with the somewhat reduced Birth-rate.

Area.

Density

The area of the City remains the same, viz. : 8,400 acres, and the mean density of the population, of course, continues to increase. It is now 55·0 persons per acre. In the more crowded parts of the town the number of persons to an acre is undoubtedly much higher than this, while in the suburbs it is much lower.

Comparative statement of Death rate, etc., in certain large town

In the subjoined statement will be found the populations and densities, together with the recorded and corrected Death-rates of some of our large towns :—

	Estimated Population, 1890.	No. of Persons per Acre.	Recorded Death-rate.	Corrected Death-rate.
London	4,421,661	59·2	20·2	21·5
Liverpool	613,463	117·7	23·5	25·8
Birmingham ...	461,865	55·0	20·3	21·7
Manchester	379,437	64·0	30·5	34·1
Sheffield	332,837	16·9	24·9	26·8
Leeds	363,799	16·9	22·6	24·2
Salford	242,509	46·9	22·3	24·3
Newcastle-on-Tyne	162,987	30·3	25·8	27·4
Norwich	95,352	12·8	21·0	20·1
Bristol	232,248	50·1	19·2	19·9
Glasgow	530,208	86·8	25·3	—
Dublin	353,082	14·3	26·4	—

Elevation

Geological position.

Before proceeding to the more statistical part of my report, I would again mention the advantages Birmingham enjoys in being situated at a height of from 291 to 616 feet above sea level, and in being built on a porous soil, generally of a sandy or gravelly nature. These are two features whose beneficial effects should not be overlooked in considering the health of the City.

I would also take this opportunity of stating that the Registration year 1890 consists of 53 weeks. The ordinary Registration year is one day shorter than the Calendar year, and hence it becomes necessary at intervals of five or six years to make up the deficit by including 53 weeks in the Registration year. Throughout my report this fact must be taken into consideration in comparing actual numbers of Births and Deaths registered during 1890 with those of other years. I have, however, calculated all rates for a period of 52 weeks, so that they are strictly comparable with those of other years.

MARRIAGES.

I have been supplied by Messrs. Cooper, Hastings, and Docker with returns of Marriages in the Parishes of which they are the Superintendent Registrars. From these returns I find that 4,140 Marriages were registered in the City during 1890, against 3,788 in 1889, and 3,634 in 1888. The Marriage-rate is 17·9 per 1,000 of the population. This is the highest rate recorded since 1877, and the year 1890 is the third successive year in which an increase has taken place; the increase during 1890, however, is much larger than the others.

The number of Marriages and the Marriage-rate for each of the past ten years are as follows:—

	Year 1881	1882	1883	1884	1885	1886	1887	1888	1889	1890
No. of Marriages.	3,261	3,581	3,634	3,435	3,276	3,462	3,452	3,634	3,788	4,140
Rate per 1,000 of the Population }	16·2	17·5	17·5	16·3	15·3	15·9	15·7	16·2	16·7	17·9

BIRTHS.

The Births registered during the 53 weeks of the year 1890 numbered 14,076, against 14,001 in 1889, and comprised those of 7,137 males and 6,939 females. Allowing for the longer period embraced by the returns of the past year, it will be seen that a fall has again occurred in the number of Births. This is still more noticeable when I state that the Birth-rate for the year has been only 29·90 per 1,000 of the population, the lowest rate ever recorded in Birmingham. In 1876 the Birth-rate stood at 42·53, the highest point it has reached. From that time it has fallen with surprising regularity year by year, and only once has the reduction been checked, namely, in 1889, when a slight rise occurred. The year under review has added one more to the long list of years which have had a smaller Birth-rate.

The following Table shows the quarterly and annual Birth-rates for each year since 1873:—

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Year.
1873 ..	42·1	40·1	38·0	39·8	40·78
1874 ...	42·3	42·9	38·7	41·1	41·25
1875 ...	41·3	40·8	39·1	41·0	40·57
1876 ...	44·5	42·2	40·9	42·5	42·53
1877 ...	45·5	42·5	39·9	41·6	42·39
1878 ...	43·2	42·8	40·2	40·5	41·67

			1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Year.
Birth-rate (continued).	1879	...	42·4	40·2	38·3	39·4	39·98
	1880	...	40·2	41·6	36·2	35·2	38·28
	1881	...	39·6	35·8	35·4	35·7	36·96
	1882	...	38·8	36·9	34·1	35·8	36·39
	1883	...	38·3	36·8	33·4	33·3	35·44
	1884	...	35·7	36·2	33·8	34·0	34·91
	1885	...	35·3	33·0	33·2	33·0	33·62
	1886	...	34·0	33·4	32·5	31·7	32·88
	1887	...	31·8	32·0	30·6	31·0	31·50
	1888	...	31·5	30·7	31·0	29·0	30·53
	1889	...	31·7	32·2	29·9	29·3	30·78
	1890	...	32·1	30·3	29·4	28·0	29·90

Birth-rates of
large towns
compared.

In the statement below I give, for comparison with our own, the Birth-rates of some large English towns during 1890 :—

28 large Towns.	London	L'pool	Birm.	Manch.	Leeds	Sheff'd	Salf'd	N'castle	N'wich	Bristol
29·9	29·0	28·7	29·9	34·8	33·3	32·1	28·7	39·7	32·9	28·0

The Birth-rate for Birmingham is just equal to that of the twenty-eight large towns, and is higher than those of London, Liverpool, Salford, and Bristol. In 1889 the same four towns had lower rates than our own.

VACCINATION.

Vaccination.

I have received from Messrs. Blanche and Knight, Vaccination Officers for the Parish of Birmingham, and Messrs. Stephens and Johnson, Vaccination Officers for Aston and Edgbaston Parishes respectively, returns of Vaccination during the year ending June 30th last. Copies of these returns are given in Table X. in the Appendix. They show that in Aston there has been a slight increase in the proportion of children successfully Vaccinated, but in the other districts there has been a decrease.

In Birmingham
Parish.

The returns for the Parish of Birmingham are by no means satisfactory, the percentage of children successfully vaccinated having still further fallen. Every year since 1885 the number has been much lower than previously, and in 1890 the proportion was considerably lower than in any former year. Side by side with the fall in the number successfully vaccinated is a corresponding rise in the number under the heading "removed to places unknown, or which cannot be reached, and cases not having been found;" or, in other words, in the number of children who cannot be traced, and who probably never undergo Vaccination. This I consider very unsatisfactory, and I can only account for it by the supposition that the continued absence of Smallpox from the town may have lessened on the part of parents their sense of the necessity for having their children vaccinated.

In Aston
Parish.

In Aston Parish the percentages are somewhat similar to those in Birmingham. The proportion of children vaccinated is, however, rather lower, while a large number are returned as not accounted for at present.

The Edgbaston return is by far the most satisfactory of In Edgbaston, the three, though it compares unfavourably with those of most recent years. For instance, the percentages of children successfully vaccinated and of those lost sight of are 84·8 and 1·9; in 1883 they were 91·1 and 0·9 respectively, a very much better record.

It appears, on the whole, that Vaccination is not so thoroughly carried out as in former years, and I view with regret the increasing number of infants who apparently escape Vaccination, and may prove in the future a serious source of danger to the community by their liability to an attack of Smallpox.

The data on which my remarks are based will be found in the Table of Percentages given below :—

Table of comparison of vaccination.

PARISH.	Year.	Vaccinated.	Died before Vaccination.	Removed to places unknown.	Unfit, insusceptible, or otherwise.
Birmingham	1881	87·3	9·6	1·7	1·4
	1882	88·9	9·2	1·0	0·9
	1883	87·1	10·2	1·3	1·4
	1884	87·2	9·7	1·4	1·7
	1885	84·1	11·2	2·1	2·6
	1886	83·7	10·6	2·6	3·1
	1887	83·9	11·0	2·7	2·4
	1888	83·0	10·2	4·2	2·6
	1889	83·9	10·1	4·0	2·0
Aston (Borough portion)	1890	81·3	11·0	5·3	2·4
	1881	83·2	10·3	5·5	1·0
	1882	81·8	9·3	6·4	2·5
	1883	82·4	9·5	5·2	2·9
	1884	82·4	11·4	3·7	2·5
	1885	82·5	11·1	3·3	3·1
	1886	82·1	10·8	3·7	3·4
	1887	81·4	11·2	4·1	3·3
	1888	79·8	11·7	4·5	4·0
Edgbaston	1889	78·4	11·9	4·5	5·2
	1890	78·7	10·5	4·6	6·2
	1881	81·3	8·2	3·2	7·3
	1882	86·1	7·3	3·6	3·0
	1883	91·1	6·7	0·9	1·3
	1884	89·2	7·5	1·1	2·2
	1885	89·0	8·4	0·7	1·9
	1886	87·1	7·9	0·9	4·1
	1887	85·8	9·5	2·0	2·7
	1888	88·8	5·0	1·0	5·2
	1889	86·8	5·8	3·4	4·0
	1890	84·8	6·5	1·9	6·8

DEATHS.

The Deaths registered during the year numbered 9,561, Deaths, and comprised those of 4,945 males and 4,616 females. They are equal to a rate of 20·31 per 1,000, against 18·4, 17·5, 19·4, Death-rate, and 19·6 in 1889, 1888, 1887, and 1886 respectively. The

Death-rate
(continued).

Death-rate is higher than in any year since 1884, and much higher than in either 1888 or 1889. It is also above the average of the rates for the ten preceding years, which was 19·7. After so many years of steady decline in the Mortality of the City, it is very disappointing to have to record so marked an increase. I find, however, that Birmingham does not stand alone in this respect, for the Death-rate for the whole of England and Wales has risen to quite as great an extent as our own, while that of the twenty-eight large towns given in the returns of the Registrar-General shows a greater increase than has occurred in Birmingham.

Cause of
increased
mortality.

On comparing the detailed Mortality of the past year with the average of the five preceding years, I find that five diseases are mainly accountable for the increase shown. Two of these are Zymotics, viz.: Scarlet Fever and Measles; the other three are Respiratory Diseases—Phthisis, Bronchitis, and Pneumonia. Scarlet Fever has caused a larger number of Deaths than in any year since 1883. At the time of writing my Annual Report for 1889, it appeared to me that the crest of one of the periodical “waves” which characterise this disease had been passed during that year, but the Mortality of the last twelve months shows that this was not the case, and that the crest of the wave had not then been reached. Measles, the other Zymotic, which shows a large increase, is one which at present is hardly amenable to sanitary precautions. The conditions most favourable to its development are not properly understood, while the rapidity with which its infection spreads makes it very difficult to control. The greater fatality of the three Respiratory Diseases may probably be referred chiefly to climatic conditions. In the first quarter of the year, however, an epidemic of Influenza, with which Bronchitis and Pneumonia were closely connected, caused a very serious rise in the Mortality from these two maladies. Whether this epidemic was due to particular meteorological conditions, or whether it depended on some specific agent, could not be determined; but whatever its cause, its results were very marked.

From the facts just noted, it will be seen that the Mortality of the year is not quite so discouraging as at first sight it might appear, and that it has resulted from the circumstance that one of those irregularly-periodical rises which characterise Zymotic Diseases has taken place at the same time at which other influences were at work in increasing the fatality of chest complaints.

Saving of life.

The Mortality of the last five years still compares favourably with that of the previous quinquennium. The average rate of the five years 1881-85 is 20·3; that of the subsequent five years is 19·0. If the former of these rates had continued during the latter period, when the population was much higher, the deaths would have numbered over 45,000, or upwards of 2,500 more than the number actually registered during the five years,—showing a saving of 500 lives per annum.

The Mortality during 1890 was at such a rate that of every 49·2 persons living one died during the year. In 1889 and 1888 the proportion was one in 54·5 and one in 57·2 respectively.

Of the Deaths registered during the year as many as 1,575 occurred in the larger public institutions, 735 of them being in the Workhouse. They are equal to a rate of 3·3 per 1,000 of the total population of the City, or, excluding the Deaths in the Workhouse, to one of 1·8.

The Registrar-General, in preparing his statistics, adopts a plan in regard to Birmingham which, in my opinion, is not justifiable. He includes in the Mortality figures for the City the Deaths of Birmingham paupers who die in Workhouses outside the City boundary, while he makes no allowance for the large number of non-residents who die in Hospitals in the City. From information I have obtained, it appears that the two sources of error counteract one another, and to rectify one only, while disregarding the other, must therefore make our recorded Mortality less accurate. I consequently keep to my usual plan of dealing with the Deaths registered by the Registrars of the City only, and my figures differ somewhat therefore from those of the Registrar-General.

In the following Table will be found the estimated population, mean density, Birth-rate and Death-rate of the City for each of the past twenty-six years :—

Year.	Population Estimated in the middle of each year.	Density. Persons per acre.	Births.	Deaths.	Annual Rate per 1,000 living.	
					Births.	Deaths.
1865	The Estimate of Population in these years is not to be relied on.	—	12,699	8,014	38·9	24·5
1866		—	12,877	8,042	38·5	24·0
1867		—	13,029	8,318	38·0	25·6
1868		—	12,992	8,548	36·3	25·9
1869		—	12,779	7,737	35·5	23·1
1870		—	12,922	7,805	35·0	23·0
1871	344,980	41·1	13,443	8,594	39·0	24·9
1872	350,164	41·7	14,123	8,048	40·5	23·1
1873	355,540	42·4	14,497	8,990	40·8	24·8
1874	360,892	43·0	14,888	9,665	41·2	26·8
1875	366,325	43·6	14,862	9,668	40·6	26·3
1876	371,839	44·3	15,816	8,330	42·5	22·4
1877	377,436	44·9	16,001	9,038	42·4	23·9
1878	383,117	45·6	15,964	9,662	41·7	25·2
1879	388,884	46·3	15,846	8,650	40·0	21·8
1880	394,738	47·0	15,111	8,088	38·3	20·5
1881	402,296	47·9	14,869	7,938	37·0	19·7
1882	408,532	48·6	14,866	8,425	36·4	20·6
1883	414,846	49·4	14,701	8,714	35·4	21·0
1884	421,258	50·1	14,991	9,043	34·9	21·1
1885	427,769	50·9	14,383	8,156	33·6	19·1
1886	434,381	51·7	14,282	8,499	32·9	19·6
1887	441,095	52·5	13,893	8,536	31·5	19·4
1888	447,912	53·3	13,673	7,835	30·5	17·5
1889	454,835	54·1	14,001	8,352	30·8	18·4
1890	461,865	55·0	14,076	9,561	29·9	20·3

Mortality in
Institutions.

Discrepancy
between
Registrar
General's and
own figures.

The foregoing Table shows clearly the rapid rise of the population of the City, and side by side with this the remarkable reduction both in the Birth-rate and Death-rate during the latter part of the period included in the statement.

Comparative
Death-rate of
Birmingham
and large
towns.

The annexed Statement shows our Death-rate, together with those of other large towns, for a number of years :—

	Twenty large English Towns.	London	L'pool	BIRM.	Manch.	Leeds	Sheffld	Salford	Newcastle	Norw'ch	Bristol
1890...	21.2...	20.2	23.5	20.3	30.5	22.6	24.9	22.3	25.8	21.0	19.2
1889...	19.0...	17.4	21.6	18.4	26.7	22.1	20.9	20.5	25.2	18.4	17.6
1888...	19.0...	18.5	20.3	17.5	26.1	20.6	20.5	21.1	20.6	20.2	16.9
1887...	20.6...	19.6	23.7	19.4	28.7	21.1	21.6	22.2	25.3	20.4	20.4
1886...	20.7 ..	19.9	23.8	19.6	26.3	21.9	19.8	22.1	22.2	23.3	19.3
1885...	20.4...	19.6	23.7	19.1	26.4	19.9	20.6	21.0	26.0	20.2	19.6
1884...	21.4...	20.3	25.1	21.1	26.3	24.1	22.3	22.2	23.0	21.1	18.3
1883...	21.7...	20.4	26.6	21.0	27.6	23.2	22.9	22.3	25.4	19.6	17.8
1882...	22.6...	21.4	26.5	20.6	26.8	23.2	21.7	23.2	23.1	20.6	19.2
1881...	21.7...	21.2	26.7	19.7	25.5	21.6	21.1	22.6	21.8	19.5	19.6
1880...	22.6...	22.2	27.3	20.5	25.4	21.0	21.1	25.9	22.0	24.7	20.1
1879...	23.2...	23.3	27.1	21.8	26.9	22.6	21.3	24.9	23.6	22.0	21.1
1878...	24.4...	23.5	29.4	25.2	27.9	23.8	25.0	25.6	23.8	24.6	21.4
1877...	22.8...	21.9	26.5	23.9	27.4	22.3	21.9	25.1	22.4	21.0	21.8
1876...	23.6...	22.3	27.6	22.4	29.2	25.1	24.3	31.9	22.8	21.9	22.6
1875...	25.4...	23.7	27.5	26.3	29.9	26.4	24.8	31.5	26.1	24.5	26.8
1874...	25.4...	22.5	32.0	26.8	30.4	28.7	26.9	29.6	29.2	23.5	22.7
1873...	24.4...	22.5	25.9	24.8	30.1	27.6	25.8	29.3	30.1	21.5	23.1

From the above figures it appears that Birmingham occupies just the same position in the list of towns as in 1889, its Death-rate being below that of the twenty large towns, and also lower than the rate of every town in the list except London and Bristol. As I have already pointed out, the increased Death-rate is common to all the large towns, and not confined to Birmingham alone, from which it is evident that some malign influence has been at work, which has impaired the healthiness not of one town only, but of the country generally.

Movements in
the Death-rate
during each
quarter of the
year.

The Deaths of males and females, and the total Death-rate during each quarter of the year, have been as under :—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1890.	Total 1889.	Total 1888.	Total 1887.	Total 1886.
Total ...	2,817	2,059	2,198	2,487	9,561	8,352	7,835	8,536	8,499
Males ...	1,471	1,086	1,141	1,247	4,945	4,343	4,105	4,382	4,406
Females ...	1,346	973	1,057	1,240	4,616	4,009	3,730	4,154	4,093
Death-rate	24.40	17.83	19.04	20.00	20.31	18.36	17.49	19.35	19.57

The Mortality of the first quarter was unusually heavy, the Death-rate being higher than in any corresponding quarter since 1879. Chest complaints caused a great number of Deaths, and seem to have depended on the variability of the temperature, together with the presence of the epidemic of Influenza already referred to.

The Death-rate of the second quarter, while somewhat above those of the spring quarters of 1889 and 1888, was lower than in the spring quarters of all other years over which my records extend. Movements in the Death-rate during each quarter of the year (continued).

In the third quarter of the year Bronchitis and Pneumonia were very fatal, and the Death-rate, notwithstanding the comparatively small amount of Diarrhœa, was rather higher than of late years. The first two months of the quarter were very cool, and this probably accounts for the higher Mortality from Bronchitis and Pneumonia.

The fourth quarter had a Death-rate in excess of that of any autumn quarter since 1884. In the last of the fourteen weeks included for registration purposes in this quarter, the Deaths registered were equal to a rate of 31.6 per 1,000 per annum, considerably the highest weekly rate for the year.

I have appended to my report a chart showing the annual rate of Mortality to which the Deaths registered week by week were equivalent. For the first ten weeks of the year the Death-rates were uniformly very high. For the next four months they were moderately low; never, however, falling below 15 per thousand, though of late years there have generally been some few weeks with Death-rates considerably below this point. In August a sharp rise—due to summer Diarrhœa—is noticeable, after which the Death-rate keeps at about 19 per thousand till the last three weeks of the year. In the last week, as already stated, an enormous rise took place; this is due to the sudden increase in the fatality of Respiratory Diseases, the Deaths from which numbered no less than 106. Chart.

The distribution of the Mortality among the Registration Sub-Districts of the City, exclusive of the Deaths in Institutions, which are given separately, has been as follows:— Distribution of Deaths among Registration Sub-districts

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total Deaths 1890.	Total Deaths 1889.	Total Deaths 1888.	Total Deaths 1887.	Death- rate. 1886.
Ladywood ...	309	227	225	256	1,017	930	864	982	933
St. Thomas ...	210	139	133	166	648	561	504	632	577
St. Martin ...	254	159	189	228	830	703	670	779	747
St. George ...	384	324	326	344	1,378	1,120	1,120	1,239	1,281
All Saints ...	221	182	228	228	859	805	746	771	873
Deritend ...	503	371	411	430	1,715	1,502	1,397	1,499	1,510
Duddeston ...	361	213	313	363	1,250	1,172	1,143	1,148	1,089
Edgbaston ...	88	73	47	84	292	262	220	254	273
Children's Hosp.	21	30	13	16	80	65	78	83	104
Queen's "	47	56	34	37	174	151	137	178	167
General "	84	74	63	85	306	255	245	254	294
City "	44	46	50	33	173	113	23	24	16
Workhouse ...	246	142	152	195	735	627	606	619	575
Lunatic Asylum	45	23	14	22	104	86	82	74	60

Death-rates
of Registration
Sub-Districts.

The increase in the Mortality is spread over all the sub-districts, but is less marked in All Saints, Duddeston, and Ladywood than elsewhere. The Deaths, excluding those in Institutions, are equal to the following rates:—Ladywood, 17·2; St. Thomas, 17·0; St. Martin, 20·2; St. George, 21·0; All Saints, 13·5; Deritend, 15·4; Duddeston, 19·3; Edgbaston, 10·8. These Death-rates are calculated on populations estimated by the use of logarithms from the rates of increase or decrease which prevailed between the census of 1871 and that of 1881. But it is now nine years since the taking of the census, and it seems very doubtful whether the rates are the same now as they were so far back as 1871-81. If they are not, the populations of the sub-districts are not reliable, and the Death-rates given must be taken as approximate only.

Distribution of
Deaths among
the Wards.

The next Table shows the Deaths in each Ward of the City during the four quarters of 1890, and in that and the three preceding years:—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1890.	Total 1889.	Total 1888.	Total 1887.
Rotton Park (W., C.H.) ...	402	252	301	350	1,305	1,195	1,092	1,138
All Saints (L.) ...	232	181	193	233	839	731	617	618
Ladywood (H.) ...	177	148	118	134	577	515	500	588
St. Paul ...	99	86	90	89	364	302	309	343
St. George...	137	118	108	108	471	414	385	421
St. Stephen ...	156	109	155	130	550	410	461	478
St. Mary (H.) ...	190	174	147	192	703	614	548	614
St. Bartholomew ...	216	140	195	175	726	497	487	568
Market Hall ...	87	66	58	72	283	205	213	258
St. Thomas (H.) ...	174	143	113	138	568	529	465	571
St. Martin...	125	72	79	96	372	363	333	395
Edgbaston...	113	84	59	91	347	294	252	305
Deritend ...	134	127	126	132	519	490	451	497
Bordesley ...	263	174	178	221	836	765	701	718
Duddeston...	131	85	108	136	460	496	480	472
Nechells ...	181	100	170	190	641	532	541	552

W. indicates Workhouse, H. Hospital, L. Lunatic Asylum, and C.H. City Hospital.

Ward popula-
tions.

Unfortunately, the populations of the Wards are not known, and their Death-rates cannot be given. Hence I can only compare the actual Mortality during the past year with that of others. In every Ward, with the exception of Nechells, the number of Deaths has risen; in St. Martin's and Deritend the increase is slight, but in all the others it is considerable.

Distribution of
Deaths among
the aetal
periods.

The Deaths have been distributed among the six aetal periods as under:—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1890.	Total 1889.	Total 1888.	Total 1887.
Under 1 year of age ...	505	522	857	709	2,593	2,396	2,105	2,468
Between 1 and 5 years	402	417	396	371	1,586	1,395	1,292	1,360
" 5 " 20 "	186	134	121	170	611	489	444	507
" 20 " 40 "	377	253	211	286	1,127	977	932	997
" 40 " 60 "	588	341	300	439	1,668	1,405	1,366	1,424
At 60 years and upwards	759	392	313	512	1,976	1,690	1,696	1,780

Large increases have taken place at all the ætal periods. The smallest increase is at the first age-period, viz. : in infants under one year ; at the other ages the rise is fairly regular.

I now propose to give the Death-rates at five groups of ages in persons of both sexes, and in males and females separately during the last six years :—

	DEATHS TO 1,000 PERSONS LIVING.						
	1890.	Average, 1885-1889	1889.	1888.	1887.	1886.	1885.
All ages... ..	20·3	18·8	18·4	17·5	19·4	19·6	19·1
Under 5 years	59·7	56·5	56·2	51·3	58·8	61·9	54·3
5 to 20 „	4·0	3·4	3·3	3·0	3·5	3·6	3·4
20 to 40 „	7·9	7·2	7·0	6·8	7·4	7·0	8·0
40 to 60 „	21·5	19·6	18·7	18·5	19·6	19·6	21·4
60 years and upwards	76·3	71·7	67·8	69·4	74·5	72·0	74·9

Comparing 1890 with the average of the five years 1885-89, the Death-rates in persons of both sexes are higher at every ætal period. Proportionately the largest increase is between 5 and 20 years of age, at which age the rate is very noticeably higher than in either of the five preceding years.

	DEATHS TO 1,000 LIVING.—MALES.						
	1890.	Average, 1885-1889	1889.	1888.	1887.	1886.	1885.
All ages	21·7	20·2	19·7	18·9	20·5	20·9	20·8
Under 5 years	63·2	60·9	60·6	54·9	61·8	68·0	59·3
5 to 20 „	4·0	3·6	3·7	3·2	3·7	3·7	3·6
20 to 40 „	8·6	8·0	7·7	7·5	8·2	7·6	9·1
40 to 60 „	23·5	21·2	19·6	21·3	21·2	20·5	23·4
60 years and upwards	83·4	76·3	73·1	74·2	79·1	73·2	81·7

Death-rates
among Males

At all the ages, and in each of the years given, the Death-rates among males have been higher than among persons of both sexes. For 1890 the Death-rate under five years compares the most favourably with the average of the five years 1885-89, all the other rates having risen in considerably greater proportions.

Death-rates
among Females.

	DEATHS TO 1,000 LIVING.—FEMALES.						
	1890.	Average, 1885-1889	1889.	1888.	1887.	1886.	1885.
All ages	19·0	17·4	17·1	16·1	18·3	18·3	17·4
Under 5 years	56·1	52·1	51·8	47·7	55·9	55·8	49·4
5 to 20 „	4·0	3·2	2·9	2·9	3·4	3·5	3·2
20 to 40 „	7·2	6·5	6·5	6·1	6·7	6·4	7·0
40 to 60 „	19·5	18·0	17·9	15·8	18·0	18·8	19·5
60 years and upwards	70·7	68·0	63·5	65·6	70·8	71·0	69·3

The increase in the Death-rates in females is very differently distributed. Between 5 and 40 years the rise is large, while at sixty years and upwards the increase is comparatively slight. Indeed the rate among females over sixty years was less in 1890 than in 1886 or 1887, in both of which years the total Mortality was much less than last year.

Average age at
death.

The average age at death during each quarter of the last two years has been as follows :—

	1890.				1889.			
First Quarter ...	34 years and 0 months.				29 years and 0 months.			
Second „ ...	26	„	8	„	29	„	1	„
Third „ ...	20	„	11	„	22	„	8	„
Fourth „ ..	28	„	1	„	28	„	8	„
Whole Year ...	27	„	10	„	27	„	4	„

The most striking feature in these figures is the exceptionally high Death-age of the first quarter, which was above that of any quarter since 1883. It was due to a great Mortality from Respiratory Diseases among persons of advanced years. As may be seen from the Chart appended to this Report, the high Death-ages occurred in the first ten weeks of the year, during which period unusual Death-rates were also recorded.

Chart.

INFANT MORTALITY.

Infant
Mortality.

I regret to report that the Infant Mortality of the year is not very satisfactory. The number of Deaths of infants under one year old is 2,593, and the proportion they bear to the Births during the year, which is perhaps the best test of infant Mortality, has risen from 17·1 to 18·4 per cent., a higher figure than in any year since 1875. To some extent this result is due to the fact that the number of Births is very small. When compared with total Deaths, the infant Mortality is not so bad, the percentage being 27·1, so that it appears that the increase in the general Death-rate coming in a year with a very low

Birth-rate tends to make the Mortality in infants look worse than it should do; as a matter of fact, however, I find that the Mortality under one year has risen to a less extent than at all ages.

That this is so will be more apparent when I give the actual Death-rate in infants under one year of age, which is 182·8 per 1,000 living at that age, against 174·2, 151·3, and 182·6 in the three preceding years, 1889, 1888, and 1887. Infantile
Death-rate.

The Infant Mortality of Birmingham is nevertheless the most unsatisfactory feature upon which I have from year to year to report. Almost invariably our City compares badly with other large towns, and the great loss of infant life which I have usually to record is very deplorable. It is, I think, probable that there is something connected with the social conditions of our labouring classes, and the very wide-spread employment of women in the town, to which the large Mortality in infants is to be attributed; but what these particular conditions are I cannot with certainty determine.

In the following Table will be seen the percentages of infant Deaths on Births in some of our largest towns:— Percentage of
Infant Deaths
on Births

Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheff'd.	Salford.	N'castle.	Norw'h.	Bristol.	
1890...	17·1...	16·3	19·5	18·4	18·7	17·2	19·5	19·9	16·9	18·0	15·1
1889...	15·9...	14·1	18·8	17·1	17·6	17·7	17·4	18·1	17·5	16·3	14·6
1888...	15·4...	14·6	16·8	15·4	17·6	17·3	17·8	18·4	13·7	16·3	12·3
1887...	16·7...	15·8	18·6	17·8	19·1	17·2	17·7	19·5	17·4	15·8	14·9
1886...	16·8...	15·9	18·8	17·6	18·3	18·1	16·8	19·8	15·5	20·2	14·9
1885...	15·4...	14·8	17·4	15·7	17·5	15·5	16·4	17·4	17·2	13·5	15·2
1884...	16·7...	15·5	19·4	17·4	18·3	18·4	17·2	18·4	15·6	18·7	14·3
1883...	15·9...	14·6	18·6	15·9	17·7	16·7	16·3	17·1	16·7	15·1	13·4
1882...	16·1...	15·1	17·8	16·5	17·9	18·0	16·5	17·8	16·6	16·9	14·2
1881...	15·2 ..	14·8	17·3	15·0	16·1	16·7	15·5	16·3	15·3	14·7	12·5

The percentage in Birmingham, though high, is exceeded by those of four other towns, viz.: Liverpool, Manchester, Sheffield, and Salford. In the previous year all the towns in the list, except London, Bristol, and Norwich, had heavier Infant Mortality than Birmingham.

In the next Table the position of Birmingham is worse than in the one preceding. The statement shows the percentages of Deaths under one to total Deaths:— Percentage of
Infant Deaths
on Total
Deaths.

Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheff'd.	Salford.	N'castle.	Norw'h.	Bristol.	
1890...	24·0...	23·3	23·9	27·1	21·4	25·4	25·2	25·6	26·0	28·2	22·0
1889...	25·7...	24·6	25·4	28·7	23·3	26·3	27·8	26·4	26·5	30·0	24·3
1888...	25·0...	24·3	24·5	26·9	23·9	27·4	26·7	27·5	25·2	28·0	21·4
1887...	26·0...	25·6	24·4	28·9	23·9	27·2	27·0	28·1	26·9	26·2	21·7
1886...	26·7...	25·8	26·4	29·6	25·3	27·9	28·9	30·8	27·5	30·1	23·5
1885...	25·1...	24·5	24·6	27·6	24·0	26·8	27·7	28·3	25·3	22·5	24·0
1884...	26·8...	25·7	27·1	28·9	25·1	26·4	28·3	29·4	26·7	30·1	24·5
1883...	25·6...	24·2	24·5	26·8	23·0	24·8	26·1	27·2	24·1	26·1	24·0
1882...	25·6...	24·3	24·5	29·1	24·6	27·8	28·4	24·0	26·9	27·7	24·4
1881...	24·9...	24·1	24·4	27·7	23·3	28·5	27·9	27·9	25·8	25·5	22·0

In only one town—Norwich—has the proportion of infant Deaths to total Deaths been as high as in Birmingham—a very unsatisfactory condition of things.

Deaths under five years.

The Deaths of children under five years of age numbered 4,179. They are equal to 43·7 per cent. of the total Deaths, against 45·4 and 43·4 in 1889 and 1888 respectively.

ANALYSIS OF THE MORTALITY IN THE CITY OF BIRMINGHAM IN EACH OF THE EIGHTEEN YEARS, 1873 TO 1890.

YEAR.	Deaths of Infants under 1 year.	Proportion of Deaths under 1 year to 1,000 Births.	DEATHS.				Annual rate per 1,000 living.			
			AT ALL AGES.		FROM ALL CAUSES.		AT ALL AGES.		FROM ALL CAUSES.	
			From all Causes.	From Seven Zymotic Diseases.	Of Children under 5 years.	Of Persons over 60 years.	From all Causes.	From Seven Zymotic Diseases.	Of Children under 5 years.	Of Persons over 60 years.
1873	2627	181	8990	2042	4424	1521	24·8	5·6	12·4	4·3
1874	2688	178	9665	2652	4589	1459	26·8	7·3	12·7	4·4
1875	2957	196	9668	2145	4785	1590	26·3	5·9	13·0	4·3
1876	2537	160	8330	1336	3881	1441	22·4	3·6	10·4	3·9
1877	2628	164	9038	1576	4460	1521	23·9	4·2	11·8	4·0
1878	2766	170	9662	2421	5128	1506	25·2	6·3	13·4	4·0
1879	2385	150	8650	1251	4095	1686	21·8	3·2	10·5	4·3
1880	2601	172	8088	1324	4043	1397	20·5	3·4	10·2	3·5
1881	2212	150	7938	1128	3741	1506	19·7	2·8	9·3	3·7
1882	2452	165	8425	1413	3979	1459	20·6	3·4	9·8	3·7
1883	2338	159	8714	1306	3818	1704	21·0	3·1	9·2	4·1
1884	2611	174	9043	1681	4315	1597	21·1	3·9	10·0	3·7
1885	2253	157	8156	876	3408	1708	19·1	2·0	8·0	4·0
1886	2515	176	8499	1383	3949	1699	19·6	3·2	9·1	3·9
1887	2468	178	8536	1336	3828	1780	19·4	3·0	8·7	4·0
1888	2105	154	7835	875	3397	1696	17·5	2·0	7·6	3·8
1889	2396	171	8352	1191	4791	1690	18·4	2·6	10·5	3·7
Average 1873 to 1889	2502	168	8682	1526	4155	1586	21·7	3·9	10·4	4·0
1890	2593	184	9561	1297	4179	1976	20·3	2·8	8·9	4·2

Full details of the mortality in the year 1890 are set forth in Table A, on pages 28-30.

SPECIFIED CAUSES OF DEATH.

Specified causes of Deaths.

The Deaths were distributed among the eight chief classes of disease as follows :—

Class	I.—Zymotic Diseases	...	1,387, or 14·5 per cent. of total mortality.
"	II.—Parasitic	"	8, or 0·1
"	III.—Dietic	"	46, or 0·5
"	IV.—Constitutional Diseases	"	1,436, or 15·0
"	V.—Developmental	"	761, or 8·0
"	VI.—Local	"	4,861, or 50·8
"	VII.—Violent Deaths	"	377, or 3·9
"	VIII.—Deaths from ill-defined and not specified causes	"	685, or 7·2

There has been a marked increase in the percentage of Deaths allotted to Class VI., Local Diseases; in the other classes the proportion of Deaths is but little altered.

CLASS I.—ZYMOTIC DISEASES.

The Deaths attributed to diseases in this class, which includes Miasmatic, Diarrhoeal, Malarial, Zoogenous, and Venereal diseases, numbered 1,387, and formed 14·5 per cent. of the total mortality. They give a Death-rate of 2·9 per 1,000, against 2·8 in 1889, and 2·2 in 1888. Included in this class are the

SEVEN PRINCIPAL ZYMOTIC DISEASES,

which caused 1,297 Deaths during the year. This number gives a Zymotic Death-rate of 2·8, against 2·6 in 1889, 2·0 in 1888, 3·0 in 1887, and 3·8 the average of the eighteen years during which I have held my appointment as Medical Officer of Health. The great reduction in the Death-rates from Zymotic disease is a most satisfactory result of the improvement in the sanitary condition of the town, and of the better measures taken to prevent the spread of contagious diseases. The reduction will be very readily seen by contrasting the average of the first five years of my tenure of office, which was 5·3 per 1,000, with that of the last five years, viz. : 2·7, or, as nearly as possible, half as much.

The Zymotic Death-rate of the past year is rendered the more satisfactory from the circumstance that the total Mortality has considerably increased. The increase in the latter is equal to 1·9 per 1,000 of the population, while the Zymotic-rate has risen by 0·2 per 1,000 only. I am pleased to find that the heavier Mortality has not affected the class of diseases which are most amenable to sanitary measures, but has been confined to those which depend on other causes rather than on defective sanitation.

In the Table below are given the Zymotic Death-rates of Birmingham and other towns during the past ten years :—

	Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheffld.	Salford.	N'castle.	Norw'h.	Bristol
1890...	2·7...	2·7	3·5	2·8	4·0	2·4	3·4	3·8	2·0	3·0	2·0
1889...	2·7...	2·2	3·4	2·6	4·0	3·4	3·3	4·6	3·0	1·9	2·1
1888...	2·4...	2·5	2·5	2·0	3·1	2·7	3·6	3·5	1·4	2·1	1·3
1887...	3·2...	3·0	3·9	3·0	4·9	2·7	4·2	4·4	3·4	3·7	3·0
1886...	2·8...	2·7	3·1	3·2	3·0	3·4	2·9	3·8	2·5	3·5	2·2
1885...	2·7...	2·8	3·6	2·0	3·1	2·2	2·7	3·4	4·4	2·1	2·3
1884...	3·5...	3·3	4·5	3·9	3·6	4·9	4·2	4·2	3·2	3·1	1·8
1883...	2·6...	2·8	4·5	3·1	3·6	4·0	4·0	3·3	4·3	1·0	1·2
1882...	3·9...	3·4	4·4	3·4	3·7	3·4	2·8	3·8	3·3	2·4	2·3
1881...	3·4...	3·6	4·5	2·8	2·3	2·9	2·7	2·9	2·6	1·7	2·3

Birmingham again occupies a good position in comparison with other towns. Four of them, viz., London, Leeds, Newcastle, and Bristol, have lower rates, and the average for the twenty large towns is also slightly below our rate. All the other towns in the list compare more or less unfavourably with Birmingham in Zymotic Mortality.

Percentage of
Zymotic Deaths
on total Deaths.

In the next Table the percentages of Zymotic Deaths on total Deaths in the same towns are given :—

	Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheff'd.	Salford	Newcastle.	Norw'h.	Bristol
1890...	12·9...	13·5	14·9	13·6	13·1	10·6	13·8	17·2	7·7	14·5	10·6
1889...	14·6...	12·8	15·6	14·3	15·0	15·2	15·6	22·3	12·1	10·5	12·1
1888...	12·6...	13·7	12·3	11·2	12·0	13·1	17·5	16·7	7·1	10·6	7·6
1887...	15·6...	15·4	16·6	15·7	17·0	12·8	19·7	20·1	13·4	18·1	14·8
1886...	13·7...	13·5	13·2	16·3	11·6	15·7	14·5	17·2	11·2	15·1	11·0
1885...	13·3...	14·1	15·1	10·7	11·6	11·4	13·1	16·2	17·0	10·3	11·7
1884...	16·3...	16·4	17·8	18·6	13·6	20·2	18·6	18·9	14·0	14·7	10·0
1883...	12·0...	13·4	16·8	14·9	12·9	17·0	17·3	14·9	17·0	5·1	6·9
1882...	16·1...	16·3	16·6	16·5	14·9	15·1	11·5	16·8	14·4	12·0	12·3
1881...	15·5...	17·0	16·8	14·2	9·1	13·6	13·0	12·9	12·1	8·7	11·7

Birmingham still holds a good position when judged by the proportion of Zymotic Mortality to total Mortality. Only five towns are more favourably placed in the list. Strange to say, Manchester is one of them, in spite of the fact that its Zymotic-rate was the highest of the ten towns given. This results from its having had a terribly high general Death-rate, compared with which its Zymotic-rate is but small.

Of the seven chief Zymotic diseases,

DIARRHŒA

Diarrhoea. has occasioned the heaviest Mortality, 434 Deaths, including eight certified as due to English Cholera, having been attributed to it, against 465, 305, and 550, in 1889, 1888, and 1887 respectively, and 520, the average of the ten years 1880-89. Diarrhoeal Death-rate. They are equal to a rate of 0·9 per 1,000, against 1·0, 0·7, and 1·2 in 1889, 1888, and 1887. In the summer quarter the rate was 2·6, against 3·3, 1·5, and 4·0.

Infancy and old age in relation to Diarrhoea. Most of the Deaths from Diarrhoea occurred in the very young or the aged; 76 per cent. were in infants under one year old, and 94 per cent. in children under five years. Of the remaining Deaths, 32 per cent. were in persons aged 60 years and upwards. The percentage in old people is somewhat smaller than usual.

Temperature in relation to Diarrhoea. The influence which appears to have the most marked effect on summer Diarrhoea, and the one which largely accounts for the great variability of its fatality year by year, is atmospheric temperature, acting, perhaps, not directly but indirectly, through the raising of the temperature of the ground. I have frequently pointed out in my reports that a hot summer is always associated with a heavy Diarrhoeal Mortality, and a cool summer with the reverse. But it appears to me that the statistics for Birmingham point to other conditions as having a share in the production of this terrible scourge of infant life. Other causes of Diarrhoea. To illustrate this, I give below some figures relative to the subject for the two decennial periods ending with 1880 and 1890 respectively :—

Decennial Period.	Average Temperature of Summer Quarters.	DIARRHŒA.	
		Average No. of Deaths per annum.	Death-rate per 1,000.
10 years, 1871-1880 ...	57·7	635	1·7
10 years, 1881-1890 ...	58·7	485	1·1

It will be seen that in the second decennium, although the summer temperature was higher, yet the Diarrhœal Mortality is much smaller than in the previous ten years. This can be accounted for only by the inference that in the first period certain conditions were present which were sufficient, notwithstanding a comparatively low temperature, to produce a higher Mortality than in the second period.

Dr. Ballard has indicated in his report upon this subject what are the *local* conditions with which Diarrhœa is most probably associated. Among them are the following:—(1) A soil from which liquid filth is not excluded by proper drainage, and by paving of the surface to prevent the soakage of liquid refuse into it, or one which is contaminated by the contents of ashpits, pigsties, cesspools, etc.; (2) the want of cleanliness of domestic premises; (3) the absence of free ventilation, both within and without dwellings.

Now, during the ten years 1871-1880 the conditions enumerated above were very largely prevalent in Birmingham. In the last decennium many of them had been altered. Better drainage had been introduced throughout the town; open yards had been largely, though imperfectly, paved; ashpits and cesspools had been removed. Then, again, houses had been more frequently cleansed, and much better circulation of air had been obtained, both by the clearing away of old and crowded houses, where the air-space was altogether too small, and by providing means of ventilation, so far as possible, in houses where such means were wanting. It is, I believe, to these improvements that the greater freedom from Diarrhœa should be largely attributed, and it will be by paying still more attention in the future to the steps which are necessary to secure cleanliness, both of soil and of air, that the ravages of Diarrhœa will be checked.

After Diarrhœa,

MEASLES

has caused the greatest fatality. The large number of 329 ^{Measles.} Deaths were referred to this disease, against 197 in 1889, and 196, the average of the ten years 1880-89. The disease has been pretty evenly distributed over all the Registration Sub-Districts, with the exception of Edgbaston, where its fatality

has been very slight, owing, no doubt, to the better care taken of patients, and the improved means adopted to prevent the spread of the infection. The Deaths from Measles were most numerous in the second and the first part of the third quarter; practically the disease had died out at the end of the year.

Map.

A map placed at the end of the report shows the distribution of the Deaths from Measles over the town.

SCARLET FEVER

Scarlet Fever

is responsible for 209 Deaths, a greater number than in any year since 1883, and much larger than the average of the ten preceding years, which was 130.

When writing my last Annual Report, it appeared that the crest of a "wave" of Scarlet Fever had been passed during 1889. This, however, was not so, for the year 1890 has had a greater Scarlatinal Mortality than its predecessor. I commented in my 1889 report on the greatly reduced fatality of the disease during the last "wave"-period, and also on the greater length of that period, viz., six years, against five and four years in the two previous waves. It now appears that even six years did not represent the full length of the period, so that the effect of more general isolation and other sanitary measures in lengthening the time occupied by an epidemic wave is even more marked than it seemed to be.

As many as 2,995 cases of Scarlet Fever were reported to me during the fifty weeks in which notification of Infectious Disease was compulsory. From the beginning of the year to the end of March the number of cases declined, but it afterwards rose again, and finally reached its maximum in October, the month in which the greatest Mortality from Scarlet Fever almost always occurs. At the end of the year the disease had become much less prevalent, and it is to be hoped that it is now really approaching its minimum.

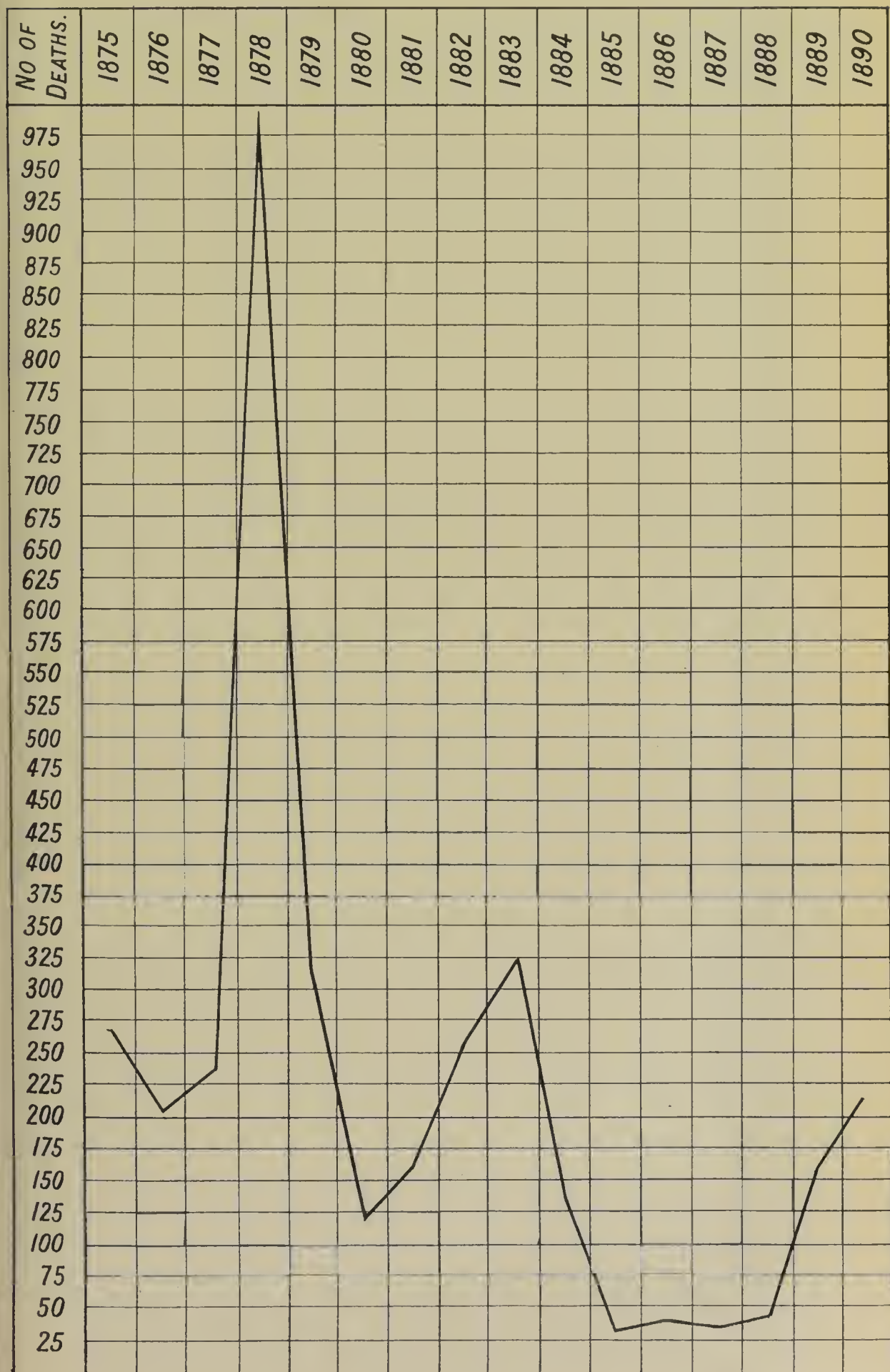
During the period of compulsory notification the Deaths registered numbered 198; the cases reported have, therefore, borne the proportion to Deaths registered of 15 to 1. This shows the ease Mortality of the year to have been decidedly low, and points to the fact that the disease assumed a mild form.

The Deaths from Scarlet Fever give a rate of 0.44 per 1,000; this is somewhat above the rate for the twenty-eight large towns, which was 0.31.

Map.

The map at the end of my report shows by a red spot the locality in which each fatal case of Scarlet Fever occurred.

*Chart shewing the number of Deaths from Scarlet
Fever in each of the Fifteen Years, 1875-1890.*



WHOOPING COUGH

was certified as the cause of 203 Deaths, against 279 in 1889, and 260, the average of the ten years 1880-89. The Mortality from this disease does not show nearly so much diminution as could be wished, particularly when it is considered that its fatal results might generally be avoided by taking precautions to protect the patient from a chill. At present, however, the disease is so lightly regarded that children suffering from it are exposed to cold in much the same way as if they were well; and till parents have learned to take more precautions against it the disease is likely to remain as a blot on our health records.

Whooping
Cough.

DIPHTHERIA.

I regret to report that the Deaths attributed to this disease numbered 61, against 50 in 1889, 40 in 1888, and 51, the average of the ten years 1880-89. The Death-rate has risen from .09 in 1888, and .11 in 1889, to .13, which, as may be seen from the Table following, is not satisfactory; only twice since 1880 has the rate been higher. It is, however, still only about one-half of that in the twenty large towns. The high rate in these towns is chiefly due to the Mortality in London, which was equal to a Death-rate of .32.

Diphtheria.

DEATH-RATE FROM DIPHTHERIA PER 1,000 OF THE POPULATION.

Diphtheria
Death-rate.

Birmingham.					Twenty Large Towns.			
1873	...	...	...	.31	...	..	...	.09
1874	...	...	...	.21	...	...	...	.16
1875	..	...	...	.16	...	...	...	.12
1876	...	...	...	.16	...	...	...	.09
1877	...	...	...	.14	...	...	...	.09
1878	...	...	...	.22	...	...	...	.13
1879	...	...	...	.18	...	...	...	.13
1880	...	...	...	.13	...	...	...	.12
1881	...	...	...	.14	...	...	...	.15
1882	...	...	...	.12	...	...	...	.17
1883	...	...	...	.11	...	...	...	.17
1884	...	...	...	.09	...	...	...	.18
1885	...	...	...	.11	...	...	...	.17
1886	...	...	...	.17	...	...	...	.16
1887	...	...	...	.13	...	...	...	.18
1888	...	...	...	.09	...	...	...	.22
1889	...	...	...	.11	...	..	...	.27
1890	...	...	...	.13	...	...	...	.25

The blue spots on the map at the end of the report indicate Deaths from Diphtheria.

Map.

FEVER.

Fever.

Fever Death-rate.

The Deaths from Fever—Typhus, Typhoid, and Simple Continued—numbered 61, 59 being from Typhoid and two from Simple Continued. As usual, no Death was attributed to Typhus Fever. The 61 Deaths are equal to a rate of .13, against .10, .14, and .18 in 1889, 1888, and 1887 respectively. The rate is above that of 1889, but lower than in any other year in my records. In the twenty large towns the rate was .18 per 1,000 ; in this case the Mortality in London is much lower than in the other nineteen towns. The Fever Death-rates since 1870 are given below :—

DEATH-RATE FROM FEVER PER 1,000 OF THE POPULATION.

Birmingham.				Twenty large towns.			
1870	...	...	.63	...	...	...	.90
1871	...	...	.53	...	...	...	.78
1872	...	...	.54	...	...	...	.60
1873	...	...	.57	...	...	...	.59
1874	...	...	.56	...	...	...	.58
1875	...	...	.56	...	...	...	.52
1876	...	...	.40	...	...	...	.45
1877	...	...	.38	...	...	...	.42
1878	...	...	.38	...	...	...	.42
1879	...	...	.22	...	...	...	.29
1880	...	...	.21	...	...	...	.30
1881	...	...	.16	...	...	...	.31
1882	...	...	.21	...	...	...	.36
1883	...	...	.20	...	...	...	.33
1884	...	...	.19	...	...	...	.28
1885	...	...	.18	...	...	...	.22
1886	...	...	.15	...	...	...	.22
1887	...	...	.18	...	...	...	.21
1888	...	...	.14	...	...	...	.19
1889	...	...	.10	...	...	...	.19
1890	...	...	.13	...	...	...	.18

Map.

The positions of the fatal cases of Typhoid Fever are shown by blue crosses on the map in the Appendix.

SMALLPOX

Smallpox.

has been entirely unknown in the City during the year ; it is, indeed, more than two years since a case occurred here.

From the following Table it will be seen that the disease has caused very few Deaths in the other towns, only ten having been registered all over England and Wales :—

DEATHS AND DEATH-RATES FROM SMALLPOX PER 100,000 OF THE POPULATION IN 20 LARGE ENGLISH TOWNS.

Twenty large towns compared.

Town.	Population.	Deaths from Smallpox in the year 1890.		Rate per 100,000.		
		1890.	1889.	1889.	1888.	1887.
London	4,421,661	4	0·1	0·0	0·2	0·2
Brighton	123,659	0	0·0	0·0	0·0	0·0
Portsmouth	142,952	0	0·0	1·4	0·0	2·2
Norwich	95,352	0	0·0	0·0	0·0	0·0
Plymouth	78,780	1	1·2	0·0	0·0	0·0
Bristol	232,248	0	0·0	0·0	11·5	5·8
Wolverhampton	83,406	0	0·0	0·0	0·0	0·0
Birmingham	461,865	0	0·0	0·0	0·0	0·5
Leicester	154,344	0	0·0	0·0	0·0	0·0
Nottingham	244,909	0	0·0	0·0	5·2	0·0
Liverpool	613,463	0	0·0	0·2	0·2	0·2
Manchester... ..	379,437	0	0·0	0·3	5·8	1·6
Salford	242,509	0	0·0	0·0	0·0	0·0
Oldham	146,716	0	0·0	0·0	10·1	0·0
Bradford	240,515	0	0·0	0·4	0·9	0·0
Leeds	363,799	0	0·0	0·3	5·1	0·3
Sheffield	332,837	0	0·0	0·0	126·8	87·9
Hull	213,833	3	1·4	0·0	9·4	1·0
Sunderland... ..	136,506	0	0·0	0·0	0·8	0·0
Newcastle-on-Tyne	162,987	0	0·0	0·0	0·0	0·6
In 20 towns	8,871,778	8	0·1	0·1	6·2	3·7

The next statement shows the numbers of cases and Deaths from Smallpox in Birmingham in each quarter and year since 1871 :—

DATE.				Cases.		Deaths.	
1871.							
November 11th to end of year				359		43	
Total				—	359	—	43
1872.							
1st Quarter				798		96	
2nd „				632		92	
3rd „				355		67	
4th „				192		44	
Total				—	1,977	—	299
1873.							
1st Quarter				171		29	
2nd „				246		37	
3rd „				124		18	
4th „				253		38	
Total				—	794	—	122
1874.							
1st Quarter				757		123	
2nd „				1,303		196	
3rd „				1,059		165	
4th „				672		153	
Total				—	3,791	—	637
1875							
1st Quarter				366		85	
2nd „				347		72	
3rd „				95		14	
4th „				16		2	
Total				—	824	—	173

Cases and
Deaths in the
City from 1871
(continued).

DATE.				Cases.	Deaths.
1876.					
1st Quarter	...	...	...	2	0
2nd "	...	...	...	2	0
3rd "	...	...	...	2	0
4th "	...	...	...	5	0
Total				11	0
1877.					
1st Quarter	...	...	...	7	1
2nd "	...	...	...	20	3
3rd "	...	...	...	20	3
4th "	...	...	...	3	1
Total				50	8
1878.					
1st Quarter	..	...	...	3	0
2nd "	...	...	...	4	0
3rd "	..	...	...	10	2
4th "	...	...	...	10	3
Total				27	5
1879.					
1st Quarter	...	..	...	1	0
2nd "	...	...	...	0	0
3rd "	...	...	..	3	0
4th "	...	...	...	0	0
Total				4	0
1880.					
1st Quarter	...	...	...	2	0
2nd "	..	...	...	5	1
3rd "	...	...	...	8	1
4th "	...	...	...	3	0
Total				18	2
1881.					
1st Quarter	...	...	...	5	5
2nd "	...	...	...	9	1
3rd "	...	...	...	2	0
4th "	...	...	...	0	0
Total				16	6
1882.					
1st Quarter	...	...	...	0	0
2nd "	...	...	...	43	6
3rd "	...	...	...	33	9
4th "	...	...	...	13	2
Total				89	17
1883.					
1st Quarter	...	...	...	48	7
2nd "	...	..	...	152	9
3rd "	...	...	...	567	54
4th "	..	...	...	435	40
Total				1,202	110
1884.					
1st Quarter	...	...	...	384	54
2nd "	...	...	...	64	8
3rd "	...	...	...	13	1
4th "	...	...	...	10	1
Total				471	64

DATE.				Cases.	Deaths.	Cases and Deaths in the City from 1871 (continued).
1885.						
1st Quarter	..	...	...	69	12	
2nd	„	...	...	4	0	
3rd	„	...	...	9	0	
4th	„	...	...	2	0	
Total				84	12	
1886.						
1st Quarter	...	...	...	1	0	
2nd	„	...	...	1	0	
3rd	„	...	...	0	0	
4th	„	...	...	0	0	
Total				2	0	
1887.						
1st Quarter	...	...	...	0	0	
2nd	„	...	...	1	1	
3rd	„	...	...	1	0	
4th	„	...	...	10	1	
Total				12	2	
1888.						
1st Quarter	...	...	...	13	0	
2nd	„	...	...	4	0	
3rd	„	...	...	1	0	
4th	„	...	...	0	0	
Total				18	0	
1889.						
1st Quarter	...	...	...	0	0	
2nd	„	...	...	0	0	
3rd	„	...	...	0	0	
4th	„	...	...	0	0	
Total				0	0	
1890.						
1st Quarter	...	..	...	0	0	
2nd	„	..	...	0	0	
3rd	„	...	...	0	0	
4th	„	...	...	0	0	
Total				0	0	
Grand Total				9,749	1,500	

DISEASE MAP.

This map, to which I have already several times referred, Disease Map is appended to my report to show the distribution over the City of the fatal cases of four of the principal Zymotic diseases, viz.: Scarlet Fever, Measles, Diphtheria, and Typhoid Fever. As the great majority of the Deaths from the first of these diseases occur in the City Hospital, it has been necessary, in order to show the fatality in various parts of the town, to mark the Deaths occurring in the City Hospital at the patients' residences previous to admission there.

An examination of the map will show that, as usual, the centre of the town, on which there is little residential property, has been almost free from Deaths from the four diseases dealt with on the map. The outlying portions of Edgbaston, Rotton Park, and Bordesley Wards have had a similar immunity, this

Disease Map
(continued).

being no doubt due to the fact that there is much less density of population in these parts of the town, and consequently better precautions can be, and are, taken against contagion. In this connection it is noteworthy that in the districts mentioned the few Deaths represented are due to Typhoid Fever and Diphtheria, diseases largely dependent for their origin on sanitary conditions, while there is an almost total absence of Deaths from Scarlet Fever and Measles, which are spread chiefly, if not solely, by direct infection.

Very few marks have had to be placed on St. Mary's Ward, but over the remainder of the town they are spread in a fairly regular manner. The Deaths from Measles have, however, been fewer in the Wards of Deritend, St. Martin, Duddeston, and Nechells.

II.—*PARASITIC*, AND III.—*DIETIC DISEASES*.

Parasitic and
Dietic Diseases.

The Deaths in these two classes of disease numbered 54, against 64 in 1889. Of these 54 Deaths, as many as 22 were caused by Chronic Alcoholism, and six by Delirium Tremens.

IV.—*CONSTITUTIONAL DISEASES*.

Constitutional
Diseases.

These have caused 1,436 Deaths, equal to a rate of 3·1 per 1,000, against 2·8 in the previous year. Phthisis and other forms of Tuberculosis are chiefly responsible for the greater Mortality in this class.

V.—*DEVELOPMENTAL DISEASES*.

Developmental
Diseases.

Owing chiefly to a large number of Deaths from Premature Birth, the Mortality from Developmental Diseases has risen from a rate of 1·5 per 1,000 to one of 1·6. The total number of Deaths in this class was 761.

VI.—*LOCAL DISEASES*.

Local Diseases.

This class has eleven sub-divisions, and includes many diseases which always cause a large Mortality. The Deaths placed in it numbered 4,861, and give a Death-rate of 10·3, against 8·9 in 1889 and in 1888. Most of the increase is due to Respiratory Diseases, which were very prevalent in the first quarter. Valvular Diseases of the Heart, Diseases of the Stomach and Enteritis, have also had an unusually heavy fatality.

VII.—*VIOLENT DEATHS*.

Violent Deaths.

These have amounted to 377 Deaths, against 359. They are equal to a rate of 0·8 per 1,000, the same figure as for the previous year.

VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.

The Deaths in this class numbered 685, against 621 in 1889. The Deaths from Debility and Marasmus have been much more numerous than in the two previous years, though not more so than in some other recent years.

Deaths from ill-defined and not specified causes.

CERTIFICATION OF CAUSES OF DEATHS.

Of the 9,561 Deaths registered during the year, 8,611 were certified by Registered Practitioners, 663 by the Coroner after an inquest had been held, and 287 were registered without a certificate, on the information of the relatives. The percentage of these last-mentioned Deaths has risen to 3·0, a higher figure than in any recent years. In the Registration Sub-District of St. George it was as high as 5·2. I regret that so many deaths do not get properly certified, as in many instances the information obtained from relatives is very inaccurate, and the real cause of Death is never ascertained.

Certification of causes of Death.

In the Table below are given particulars respecting the Certification of Causes of Deaths during 1890 :—

Registration Sub-Districts.	Total Deaths.	Certified by		Not Certified.	Proportion per cent. of Deaths.		
		Registered Medical Practitioners.	Coroner.		Certified by		Not Certified.
					Registered Medical Practitioners.	Coroner.	
City of Birmingham.	9,561	8,611	663	287	90·1	6·9	3·0
Ladywood	1,097	1,000	60	37	91·1	5·5	3·4
St. Thomas	822	721	85	16	87·7	10·3	2·0
St. Martin	830	736	65	29	88·7	7·8	3·5
St. George	1,684	1,408	189	87	83·6	11·2	5·2
All Saints	1,871	1,759	77	35	94·0	4·1	1·9
Deritend	1,715	1,585	94	36	92·4	5·5	2·1
Duddeston	1,250	1,137	77	36	91·0	6·1	2·9
Edgbaston	292	265	16	11	90·7	5·5	3·8

The Table on the next page gives full details of the mortality from the numerous causes of Death, showing the numbers at the various ætal periods, and in the several Registration Sub-Districts, as well as the totals for the whole City.

DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE
YEAR ENDING JANUARY 3RD, 1891.

1891.	AGES.						REGISTRATION SUB-DISTRICTS.								City.
	0-1	1-5	5-20	20-40	40-60	60 and up.	Ladywood.	St. Thomas.	St. Martin.	St. George.	All Saints.	Deritend.	Duddeston.	Edgbaston.	
ALL CAUSES	2593	1586	611	1127	1668	1976	1097	822	830	1684	1871	1715	1250	292	9561
I.—Specific Febrile, or Zymotic Diseases.															
1.—MIASMATIC DISEASES.															
Smallpox	76	237	16	..	..	..	54	25	30	61	61	69	27	2	329
Measles	8	137	63	1	..	..	4	5	4	11	166	9	10	..	209
Scarlet Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough	68	130	5	..	..	..	22	12	11	37	20	74	23	4	203
Diphtheria	3	30	21	4	2	1	15	6	6	9	5	11	4	5	61
Simple, Continued, or Ill-defined Fever	..	..	1	1	..	..	..	1	..	..	..	1	..	..	2
Enteric or Typhoid Fever	1	6	25	22	4	1	6	10	3	8	14	14	2	2	59
Other Miasmatic Diseases	2	1	..	2	8	2	4	..	2	2	1	1	3	2	15
2.—DIARRHOICAL DISEASES.															
Simple Cholera	2	2	..	1	3	..	2	..	2	1	..	2	..	1	8
Diarrhea, Dysentery	330	72	6	4	5	9	42	25	41	90	35	100	84	9	426
3.—MALARIAL DISEASES.															
Remittent Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4.—ZOOGENOUS DISEASES.															
Cowpox and effects of Vaccination	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Other Diseases (<i>e.g.</i> , Hydrophobia, Glanders, Splenic Fever)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5.—VENEREAL DISEASES.															
Syphilis	24	4	1	5	1	..	8	6	2	4	12	1	2	..	35
Gonorrhœa, Stricture of Urethra	..	..	..	..	5	2	1	3	..	3	..	..	..	..	7
6.—SEPTIC DISEASES.															
Erysipelas	11	..	..	1	2	4	2	1	2	3	1	4	5	..	18
Pyæmia, Septicæmia	..	..	3	5	4	..	4	..	1	2	2	3	..	..	12
Puerperal Fever	..	..	..	1	1	..	..	..	1	1	..	..	..	..	2
II.—Parasitic Diseases.															
Thrush, and other Vegetable Parasitic Diseases	6	..	..	..	..	..	2	..	1	..	1	2	..	..	6
Worms, Hydatids, and other Animal Parasitic Diseases	..	..	..	2	..	..	..	1	..	1	..	..	..	..	2
III.—Dietic Diseases.															
Want of Breast Milk, Starvation	15	1	..	..	2	..	3	1	2	3	2	2	4	1	18
Scurvy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chronic Alcoholism	..	..	..	11	7	4	3	1	..	2	4	7	3	1	22
Delirium Tremens	..	..	..	5	1	..	..	..	3	3	..	..	..	..	6
IV.—Constitutional Diseases.															
Rheumatic Fever, Rheumatism of the Heart	..	..	6	7	5	..	4	1	..	4	1	2	4	2	18
Rheumatism	..	1	8	8	3	7	4	2	..	4	9	1	6	1	27
Gout	..	..	..	..	4	6	..	1	1	..	3	1	2	2	10
Rickets	7	9	..	..	..	..	3	2	2	1	3	1	4	..	16
Cancer, Malignant Disease	..	..	8	22	131	94	26	30	20	37	63	38	26	15	255
Tabes Mesenterica	54	34	1	2	..	..	22	4	10	23	7	13	12	..	91
Tubercular Meningitis, Hydrocephalus	35	27	7	2	..	..	14	3	8	9	5	17	13	2	71
Phthisis	13	17	74	369	271	68	85	82	98	113	206	129	88	11	812
Other forms of Tuberculosis, Scrofula	23	20	26	19	4	2	13	5	8	21	25	12	14	1	99

DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE
YEAR ENDING JANUARY 3RD, 1891—continued.

1891.	AGES.						REGISTRATION SUB-DISTRICTS.								City.
	0-1	1-5	5-20	20-40	40-60	60 and up.	Ladywood.	St. Thomas.	St. Martin.	St. George.	All Saints.	Deritend.	Duddeston.	Edgbaston.	
IV.—Constitutional Dis.—continued.															
Purpura, Hæmorrhagic Diathesis ..	1	2	..	1	..	..	1	..	..	..	2	..	1	..	4
Anæmia, Chlorosis, Lencocythæmia ..	..	1	2	1	3	4	3	1	2	..	3	1	1	..	11
Glycosuria, Diabetes Mellitus ..	..	..	4	6	6	6	3	2	2	5	2	5	1	2	22
Other Constitutional Diseases ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
V.—Developmental Diseases.															
Premature Birth	269	..	..	..	..	..	46	13	28	47	46	62	23	4	269
Atelectasis	33	..	..	..	..	..	4	1	2	4	5	8	9	..	33
Congenital Malformations..	27	..	..	..	1	..	5	2	3	1	7	5	3	2	28
Old Age.. .. .	..	..	..	..	3	428	32	32	30	68	149	55	44	21	431
VI.—Local Diseases.															
1.—DISEASES OF NERVOUS SYSTEM.															
Inflammation of Brain or Membranes ..	49	82	34	12	16	3	14	14	24	27	44	35	33	5	196
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis ..	..	..	5	18	125	175	29	24	28	39	76	60	41	26	323
Insanity, General Paralysis of the Insane ..	..	..	..	4	3	3	..	..	1	1	8	..	..	..	10
Epilepsy	2	2	8	20	4	4	2	1	2	6	11	12	4	2	40
Convulsions	136	59	4	5	..	..	29	12	24	28	20	46	38	7	204
Laryngismus Stridulus (Spasm of Glottis) ..	12	7	1	..	..	..	1	1	2	3	..	7	5	1	20
Disease of Spinal Cord, Paraplegia, Paralysis Agitans	3	2	..	12	11	14	1	4	2	3	13	11	5	3	42
Other Diseases of Nervous System ..	3	3	4	11	12	7	2	7	3	6	6	7	5	4	40
2.—DISEASES OF ORGANS OF SPECIAL SENSE.															
(e.g., of Ear, Eye, and Nose).	4	1	2	1	3	2	2	2	..	2	3	2	1	1	13
3.—DISEASES OF CIRCULATORY SYSTEM.															
Pericarditis	..	1	5	1	2	1	..	1	..	6	3	..	..	..	10
Acute Endocarditis	..	..	3	6	..	1	..	4	2	1	1	..	2	..	10
Valvular Diseases of Heart	..	2	12	33	43	35	8	10	5	30	42	12	10	8	125
Other Diseases of Heart	8	5	31	70	174	191	46	60	40	59	88	95	64	27	479
Aneurism	..	1	..	4	10	3	..	1	..	7	3	3	4	..	18
Embolism, Thrombosis	1	..	..	3	7	2	3	..	..	2	4	..	3	1	13
Other Diseases of Blood Vessels ..	1	..	2	2	5	5	..	3	1	..	3	5	3	..	15
4.—DISEASES OF RESPIRATORY SYSTEM.															
Laryngitis	1	19	8	1	3	2	5	3	3	13	2	6	2	..	34
Croup	10	47	5	..	..	..	4	2	6	16	2	19	13	..	62
Emphysema, Asthma	..	..	..	4	16	14	3	2	3	3	6	4	10	3	34
Bronchitis	324	193	12	48	256	466	165	93	117	247	193	257	187	35	1299
Pneumonia	143	195	44	134	163	112	36	53	85	140	140	159	104	24	791
Pleurisy	1	5	8	9	12	11	5	2	5	8	13	6	5	2	46
Other Diseases of Respiratory System ..	22	17	4	12	29	20	6	12	18	12	13	22	18	3	104
5.—DISEASES OF DIGESTIVE SYSTEM.															
Dentition	40	29	..	..	..	..	14	4	2	20	11	7	10	1	69
Sore Throat, Quinsy	3	5	6	1	2	..	7	1	..	5	2	..	2	..	17
Diseases of Stomach	72	20	11	14	20	18	18	15	9	31	41	23	15	3	155
Enteritis	61	19	6	8	4	3	15	8	11	21	10	20	15	1	101
Obstructive Diseases of Intestines ..	5	2	5	10	13	18	3	10	3	14	10	2	8	3	53
Peritonitis	4	2	12	14	11	8	7	5	3	13	1	12	9	1	51
Ascites	..	..	..	..	1	2	1	1	1	..	..	..	..	..	3
Cirrhosis of Liver	..	..	..	6	37	20	11	8	5	17	6	8	4	4	63
Jaundice, and other Diseases of Liver ..	9	..	..	..	20	20	10	4	4	5	3	15	5	3	49
Other Diseases of Digestive System ..	11	1	6	4	6	8	3	1	2	9	10	7	3	1	36
6.—DISEASES OF LYMPHATIC SYSTEM (e.g., of Lymphatics and Spleen).															
.. .. .	..	..	2	1	1	..	1	..	..	2	..	..	..	1	4
7.—DISEASES OF GLAND-LIKE ORGANS OF UNCERTAIN USE (e.g., Bronchocele, Addison's Disease).															
.. .. .	..	..	..	3	2	..	..	1	..	1	2	..	..	1	5

DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE
YEAR ENDING JANUARY 3RD, 1891—continued.

1891.	AGES.						REGISTRATION SUB-DISTRICTS.								City.
	0-1	1-5	5-20	20-40	40-60	60 and up.	Ladywood.	St. Thomas.	St. Martin.	St. George.	All Saints.	Deritend.	Duddeston.	Edgbaston.	
VI.—Local Diseases—continued.															
8.—DISEASES OF URINARY SYSTEM.															
Nephritis	1	4	6	8	21	28	2	6	6	8	35	8	2	1	68
Bright's Disease, Albuminuria	..	2	7	18	29	36	13	8	2	17	24	8	14	6	92
Disease of Bladder or of Prostate	..	1	1	1	2	18	2	4	2	5	3	4	2	1	23
Other Diseases of the Urinary System ..	1	1	4	7	11	2	6	3	1	6	4	2	3	1	26
9.—DISEASES OF REPRODUCTIVE SYSTEM.															
(A) Of Organs of Generation.															
Male Organs	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Female Organs	..	..	2	10	8	..	12	1	..	1	2	2	1	1	20
(B) Of Parturition.															
Abortion, Miscarriage	..	..	1	2	..	..	..	1	..	1	..	1	..	..	3
Puerperal Convulsions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Placenta Prævia, Flooding	..	..	..	2	..	..	..	..	..	..	..	1	1	..	2
Other Accidents of Child-birth	..	..	1	24	5	..	1	4	1	7	3	6	7	1	30
10.—DISEASES OF BONES AND JOINTS.															
Caries, Necrosis	..	3	2	3	1	..	1	..	1	..	5	2	..	..	9
Arthritis, Ostitis, Periostitis	..	1	3	1	1	1	..	1	..	2	2	..	2	..	7
Other Diseases of Bones and Joints	2	3	4	4	..	..	1	1	..	5	1	3	2	..	13
11.—DISEASES OF INTEGUMENTARY SYSTEM.															
Carbuncle, Phlegmon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Diseases of Integumentary System ..	3	3	1	3	3	20	6	3	..	5	9	4	4	2	33
VII.—Deaths from Violence.															
1.—ACCIDENT OR NEGLIGENCE.															
Fractures and Contusions	..	4	13	19	21	20	4	12	3	35	7	10	5	1	77
Gunshot Wounds	..	..	..	..	1	..	..	..	..	1	..	..	..	..	1
Cut, Stab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Burn, Scald	6	20	18	5	7	3	3	17	1	42	2	2	1	..	68
Poison	..	3	2	..	5	2	1	..	..	5	4	1	1	..	12
Drowning	..	1	8	5	6	2	6	..	5	..	5	5	..	1	22
Suffocation	102	4	..	1	1	2	12	12	17	23	9	21	15	1	110
Otherwise	1	4	9	11	14	11	3	11	1	18	5	5	6	1	50
2.—HOMICIDE.															
Manslaughter	..	..	..	2	..	..	..	1	..	..	..	..	1	..	2
Murder	..	..	..	1	..	..	..	..	..	1	..	..	..	..	1
3.—SUICIDE.															
Gunshot Wounds	..	..	1	2	..	1	..	..	..	1	1	..	..	2	4
Cut, Stab	..	..	..	..	2	1	..	..	..	3	..	..	..	..	3
Poison	..	..	..	1	4	1	..	..	..	5	..	1	..	..	6
Drowning	..	..	1	1	3	..	2	..	1	..	..	1	..	1	5
Hanging	..	..	..	4	4	5	1	1	2	2	4	1	2	..	13
Otherwise	..	..	..	1	1	1	..	1	..	1	..	1	..	..	3
4.—EXECUTION.															
Hanging	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
VIII.—Deaths from Ill-Defined and not Specified Causes.															
Dropsy	1	1	..	1	5	3	..	1	..	2	2	2	2	2	11
Debility, Atrophy, Inanition	257	6	..	..	1	4	33	32	20	41	32	43	63	4	268
Marasmus	267	58	1	1	..	..	35	47	28	57	39	59	62	..	327
Mortification	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1
Tumour	..	1	4	9	13	3	11	3	..	9	3	3	1	..	30
Abscess	3	5	1	3	3	2	1	..	1	3	3	3	3	3	17
Hæmorrhage	1	..	..	..	4	1	1	..	1	..	2	2	..	..	6
Sudden Death (cause not ascertained) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other not Specified or Ill-defined Causes ..	9	2	4	3	4	3	1	..	..	2	15	2	4	1	25

METEOROLOGY.

The mean temperature for the year 1890 was $48^{\circ}\cdot 0$, or $0^{\circ}\cdot 1$ Year. above the average of the preceding ten years. It is a singular coincidence that the mean temperature for 1890 is exactly identical with that for 1889. Of the twelve months, five were above and six were below the average, while the mean temperature for June was identical with the average of the ten previous years. January furnished the largest excess of temperature, and December had the greatest deficiency. The rainfall during the year was exceptionally small. One has to refer back a long way to find a year having such a remarkably scanty rainfall.

The mean temperature for *January* was $40^{\circ}\cdot 7$, or $4^{\circ}\cdot 2$ January. above the average. The weather throughout the month was mild, excepting the first three days, which were very severe. The lowest temperature recorded was $18^{\circ}\cdot 5$ on the 1st, and the highest was 54° , reached on two occasions, whilst 50° and upwards was recorded thirteen times. The month was pleasant and fairly bright, notwithstanding that the rainfall was in excess. *February* was as unpleasant as its February predecessor was genial. It had a mean temperature of $36^{\circ}\cdot 9$, or $1^{\circ}\cdot 9$ below the average. The prevailing winds were northerly and easterly, and this accounts for the weather being so cold and the sky so overcast. *March* had a high mean temperature, being as much as $3^{\circ}\cdot 2$ above the average. As a proof of March. the mildness of the month it may be mentioned that the thermometer registered 60° twice and 50° or more seventeen times. It will thus be seen that the weather experienced this month was quite the reverse of that usually expected or realised. The first six days, however, were cold.

April, keeping up the reputation which it has secured April during the last few years, was dismal and unseasonable, and altogether out of harmony with the well-known characteristics of the month. The mean temperature was $44^{\circ}\cdot 8$, or $0^{\circ}\cdot 3$ below the average. Several times the temperature fell below freezing point, a state of things which caused a large amount of discomfort, following, as it did, on the warm weather of the previous month. Ample compensation for the wretched weather of April was made on the advent of *May*, of late years one of the finest May. months. The mean temperature of May was $53^{\circ}\cdot 9$, or $2^{\circ}\cdot 2$ above the average. It had not quite so high a mean as the corresponding month of last year, but it made up for this by having a smaller rainfall. The latter part of the month was all

June.	sunshine, and, in consequence, the ground became dry and parched. <i>June</i> was a very fair month, having a mean temperature of $57^{\circ}8$, or just equal to the average. Though, perhaps, there was not much sunshine, still every day was warm.
July.	The mean temperature for <i>July</i> was $59^{\circ}5$, or $1^{\circ}5$ below the average. The first twelve days were dull and cold, but towards the latter end of the month the weather considerably improved, and on the 23rd a maximum of $73^{\circ}5$ was registered. The
August.	conditions prevailing in <i>August</i> were the opposite to those which obtained in July, for in August the first part of the month was very fine, while the latter part was dull, wet, and unseasonable. High winds were noted on the 7th, 16th, and
September.	23rd. The best month of the year was <i>September</i> , whose mean temperature was $59^{\circ}6$, or as much as $4^{\circ}0$ above the average. It was truly a delightful month from beginning to end. The sun shone on nearly every day, and there were twelve days having maxima of 70° or more. Generally in this month low minima are reached at night, but this was not so last year. One has to look back over a long period to find a September which stands as a parallel to this one.
October.	<i>October</i> was a very pleasant month, with a mean temperature $2^{\circ}4$ above the average. The first fifteen days were indeed charming, the temperature on each of these days reaching 60° or more. An unusual and unlooked for occurrence at this time of year was witnessed on the afternoon of the 13th in the shape of a vivid flash of lightning, followed by a heavy clap of thunder, and accompanied by a shower of hail which lasted for some minutes. Snow was observed on the 20th and 26th, but no great quantity
November.	fell. The mean temperature for <i>November</i> was $42^{\circ}5$, or $0^{\circ}2$ below the average. There were some very bright days during the month, and till the last week the weather was mild and open, but the close of the month brought an entire change, and the warm weather gave place to frost, biting north-easterly winds, and snow showers, which served as a first reminder of
December.	impending winter. With the advent of <i>December</i> we come to the coldest continuous period ever remembered. The mean temperature was as much as $9^{\circ}2$ below the average, a most remarkable variation. The lowest temperature was 9° on the night of the 22nd, and at nine o'clock also on the 23rd the mercury stood at 9° . As a consequence of this intense cold many deaths took place amongst old people from pulmonary and kindred complaints. On the night of the 18th two inches of snow fell, and this depth was increased to six inches by the fall continuing throughout most of the next day. This snow caused great inconvenience to traffic, both vehicular and otherwise. Easterly winds were very prevalent, but no dense fogs were experienced.
Rainfall.	The rainfall for 1890 amounted to 22.44 inches, which is 8.42 inches below the mean annual rainfall for Birmingham, so that the deficiency of rain for the year is exceedingly great. The last few years have all shown deficient rainfalls, but none

of them can be compared with 1890 for dryness. Only January, May, August, and November exceeded their average rainfall, the largest excess falling to January. An inch of rain never fell on any one day during the whole year. The heaviest daily fall occurred in November, when 0·73 inch was measured ; and the same month furnishes the greatest number of rainy days, viz., 22. Rainfall
(continued).

No violent gales or dense fogs visited the district during the year. Gales and Fogs.

MONTHS.	TEMPERATURE.			RAINFALL.		
	Mean Tempera- ture in Degrees and Parts.	Average for 10 years, 1880-1889 inclusive.	Above or below the average.	Rainfall for Month in Inches and Parts.	Average for 10 years 1880-1889 inclusive.	Above or below the average in Inches and Parts.
January	40°7	36°5	+ 4°2	3·07	1·94	+ 1·13
February.....	36·9	38·8	— 1·9	0·70	2·24	— 1·54
March	43·3	40·1	+ 3·2	1·74	2·22	— 0·48
April	44·8	45·1	— 0·3	1·11	2·17	— 1·06
May	53·9	51·7	+ 2·2	2·54	2·45	+ 0·09
June	57·8	57·8	—	1·59	2·56	— 0·97
July.....	59·5	61·0	— 1·5	2·00	2·99	— 0·99
August	58·8	59·9	— 1·1	3·11	2·38	+ 0·73
September	59·6	55·6	+ 4·0	0·91	2·76	— 1·85
October	49·4	47·0	+ 2·4	1·53	3·47	— 1·94
November	42·5	42·7	— 0·2	3·49	3·03	+ 0·46
December	29·2	38·4	— 9·2	0·65	2·65	— 2·00
Year.....	48·0	47·9	+ 0·1	22·44	30·86	— 8·42

On the next page will be found a table giving particulars of certain meteorological conditions side by side with information respecting the mortality from a number of diseases and classes of disease, and at certain age-periods, in each week of the year. This table shows clearly the effect of seasonal variations on mortality from certain causes. The increased mortality from Diarrhœa, for instance, is seen to follow closely upon the warm weather of the summer months, while respiratory diseases are much more fatal in the winter. It may be noticed, too, that in the summer, Diarrhœa being prevalent, it is in children that the increased mortality chiefly occurs ; in winter it is very largely the aged who succumb to chest diseases.

METEOROLOGY, BIRTHS, DEATHS, AND MORTALITY FROM CERTAIN
PREVALENT DISEASES FOR EACH WEEK OF 1890.

Number.	Week.	Date of Ending.	Temperature of the				Horizontal Movement of Air in Miles.	Mean Humidity, complete Saturation = 100.	Rainfall in inches.	Births.	Deaths at			Deaths from										
			Air.			Ground.					All Ages.	Under 1 year.	1 to 5 years.	Over 60.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhea.	Phthisis.	Respiratory Diseases.	
Highest during week.	Lowest during week.	Mean Temperature.	1 foot deep.	4 feet deep.																				
1	1890.	Jan. 4	41°5	18°5	29°2	37°7	42°4	305	99	0.22	318	207	39	30	58	...	5	5	4	...	3	3	15	50
2	"	11	54°0	34°0	45°7	41°1	41°5	1940	90	0.31	269	210	32	28	76	...	3	6	1	3	...	...	12	66
3	"	18	51°5	34°0	41°4	42°7	43°0	1434	96	0.52	266	242	51	24	63	...	12	...	1	4	1	2	21	67
4	"	25	52°5	31°0	40°2	40°6	43°0	1832	86	1.15	265	201	37	44	50	...	8	4	2	1	2	3	11	77
5	Feb.	1	54°0	30°0	40°6	40°4	42°1	1369	94	0.98	299	226	27	38	58	...	7	6	...	2	1	2	23	65
6	"	8	48°0	28°0	37°4	39°9	42°0	564	93	0.04	285	230	51	29	54	...	8	7	...	4	2	1	23	72
7	"	15	42°5	25°5	34°0	37°6	41°0	672	97	0.52	292	253	40	28	75	...	6	5	1	4	1	...	25	87
8	"	22	46°0	31°5	38°2	38°6	40°1	896	97	0.11	273	233	35	29	69	...	1	2	...	3	...	1	26	89
9	Mar.	1	47°0	26°0	36°1	38°6	41°0	668	91	0.04	264	195	33	29	51	...	7	4	...	4	...	4	16	63
10	"	8	51°0	18°0	36°8	37°1	40°0	1444	90	0.26	269	242	43	31	84	...	3	3	...	4	1	2	23	72
11	"	15	60°0	31°5	45°5	41°3	40°6	1525	85	0.28	315	206	44	32	44	...	6	6	...	3	1	3	20	47
12	"	22	55°5	31°0	43°6	42°0	42°0	1027	80	0.44	291	185	33	28	45	...	8	2	3	2	1	1	23	44
13	"	29	60°0	34°0	47°8	43°3	42°4	1330	85	0.75	299	187	40	32	32	...	14	7	...	4	3	2	23	30
14	April	5	57°0	26°0	43°6	43°6	43°6	555	73	0.09	259	185	39	47	49	...	6	5	1	6	1	4	14	41
15	"	12	62°0	33°5	44°2	44°3	44°0	930	70	0.45	275	159	33	31	25	...	8	2	2	3	1	...	16	26
16	"	19	57°0	32°0	43°1	43°9	44°0	1171	87	0.31	287	183	41	39	39	...	11	4	...	3	...	...	17	38
17	"	26	57°0	36°0	47°0	44°7	44°1	1083	79	0.35	278	138	38	31	24	...	6	5	2	3	...	1	10	28
18	May	3	67°0	34°5	50°5	47°2	45°1	521	69	0.08	293	143	42	24	24	...	10	4	1	4	...	2	10	37
19	"	10	63°0	39°0	51°6	50°1	46°7	561	81	1.33	287	177	42	21	33	...	9	4	...	2	1	2	23	44
20	"	17	69°0	41°5	53°5	50°9	47°9	840	71	0.68	291	171	45	30	25	...	20	1	1	3	6	2	19	23
21	"	24	71°5	43°5	56°8	53°6	49°1	727	59	0.27	278	151	44	29	24	...	6	5	1	5	...	1	6	21
22	"	31	75°5	36°0	53°6	55°4	50°8	885	64	0.18	220	136	36	33	22	...	10	4	...	5	...	...	10	33
23	June	7	66°5	35°5	55°9	54°3	51°3	1064	71	0.16	266	141	37	26	29	...	6	6	2	3	1	4	13	26
24	"	14	69°5	41°0	55°9	55°5	52°1	541	74	0.43	248	151	39	30	36	...	14	2	1	...	...	4	9	25
25	"	21	71°0	44°0	59°2	56°7	52°9	760	72	0.30	258	165	42	45	31	...	23	7	...	4	...	1	9	25
26	"	28	73°0	46°0	60°4	58°3	53°6	774	77	0.34	255	159	44	31	31	...	11	5	2	1	1	5	10	27
27	July	5	67°0	43°0	56°0	57°0	54°1	526	76	0.90	265	150	44	33	17	...	10	6	...	5	...	5	16	24
28	"	12	65°0	43°5	55°7	55°4	54°0	705	73	0.44	257	167	40	43	27	...	15	9	2	4	2	2	11	24
29	"	19	73°0	46°0	61°7	58°6	54°4	857	69	0.53	255	148	49	26	27	...	6	3	...	2	...	8	9	27
30	"	26	73°5	44°5	61°4	58°7	55°2	908	72	0.09	246	149	51	26	34	...	9	3	1	6	2	7	8	26
31	Aug.	2	72°0	47°0	62°2	60°2	55°9	1121	79	0.55	235	168	59	35	29	...	15	6	...	3	2	15	7	29
32	"	9	79°0	48°5	62°8	61°2	56°7	963	74	0.17	213	178	73	29	22	...	4	2	...	9	1	22	14	28
33	"	16	70°0	47°0	59°9	59°1	56°9	983	77	1.21	295	185	94	30	18	...	2	3	1	3	...	46	11	28
34	"	23	70°5	47°0	58°4	57°3	56°0	852	82	0.79	274	214	109	39	19	...	2	4	2	3	...	64	11	24
35	"	30	65°0	39°0	54°1	54°6	55°0	733	72	0.81	250	192	94	22	32	...	3	3	1	3	1	4	17	24
36	Sept.	6	75°0	37°5	58°7	55°0	54°0	615	84	0.02	283	149	64	28	18	...	3	5	...	4	3	26	8	21
37	"	13	78°5	40°5	59°8	57°1	54°9	273	81	0.00	244	187	60	33	32	...	3	6	...	7	2	21	19	28
38	"	20	75°5	43°0	61°1	56°7	55°0	302	77	0.36	279	160	59	30	21	...	3	3	1	4	2	18	14	22
39	"	27	68°0	41°0	57°3	55°3	54°9	793	84	0.53	294	151	61	22	17	...	...	4	3	2	1	27	15	21
40	Oct.	4	74°0	34°5	57°2	54°4	54°1	1160	80	0.08	274	145	59	18	18	...	...	2	1	2	1	16	16	15
41	"	11	68°0	32°5	54°3	53°2	53°9	706	89	0.58	304	180	59	15	36	...	2	3	1	...	4	13	21	25
42	"	18	66°0	35°0	50°1	49°9	52°4	889	87	0.36	255	148	49	30	18	...	1	5	5	1	2	18	8	25
43	"	25	53°0	37°0	47°0	48°4	50°7	490	90	0.38	286	173	48	31	30	...	4	9	1	5	1	6	16	22
44	Nov.	1	57°0	21°5	43°2	45°7	49°6	805	89	0.33	242	162	37	29	32	...	5	4	1	1	...	4	14	29
45	"	8	54°0	32°0	43°6	46°0	48°8	1193	89	1.63	268	178	51	28	34	...	2	6	1	5	...	8	15	36
46	"	15	56°5	31°0	42°2	43°6	47°2	734	93	0.81	276	167	44	30	39	...	3	1	2	8	2	2	15	31
47	"	22	57°0	31°5	49°1	46°6	47°2	786	94	0.26	243	160	51	25	31	...	2	3	4	4	1	3	13	42
48	"	29	60°5	24°0	35°9	43°1	47°1	1321	97	0.59	207	162	47	22	35	...	3	1	...	5	3	1	18	50
49	Dec.	6	42°0	27°0	35°0	39°9	44°6	884	96	0.19	208	179	49	23	44	...	2	...	2	8	1	2	14	37
50	"	13	38°0	24°5	30°0	37°5	43°4	482	99	0.00	220	164	42	25	33	...	1	2	1	2	1	1	24	40
51	"	20	35°0	13°0	26°5	35°7	41°8	507	100	0.35	236	193	48	32	38	...	...	2	4	12	...	1	20	57
52	"	27	34°5	9°0	26°7	34°6	40°4	80	100	0.10	143	195	49	28	50	...	1	2	2	2	...	...	11	72
53	Jan.	3	34°5	20°0	28°1	34°5	39°6	900	100	0.14	314	281	76	35	74	...	...	1	...	18	2	3	20	106

II.—SANITATION.

i.—*Influences affecting or threatening to affect injuriously the public health.*

The accumulation of filth in ashpit middens has undergone considerable diminution during the year, no less than 1,823 such receptacles having been abolished, as shown in the following statement:—

No. of ashpits still existing	..	..	7,602
No. of ashpits removed during 1890	..	..	1,823
No. of pans abolished during 1890	..	..	129
No. of water-closets substituted	..	..	2,872
No. of waste-water flush closets substituted	..	..	20

Ashpit
middens.

The abolition of midden closets, so essential to the improvement of the health of the community, renders necessary the provision of a suitable out-door arrangement to replace it. To all who have given attention to this subject it is evident that the substitute for it must be some form of the water-closet, but it is clear that the ordinary expensive and complicated in-door closet is not suited for the purpose. The *desideratum* is an out-door closet, cheap, simple, and easy of construction, not readily put out of order, requiring little or no attention, and exempt from the serious drawback of becoming useless through freezing in the severest and most protracted cold weather. In my Annual Report for the year 1885 I suggested an arrangement, the principle of which had for some time commended itself to my mind, and I gave drawings in plan and section and detail. It requires neither basins nor cisterns, nor even a special water supply. One of the very strong claims to acceptance of this form of closet consists in the fact that it is actuated entirely and automatically by the waste water of the premises, no special water supply being required, and consequently no increase in the volume of sewage resulting, and no additional work being thrown upon the Sewage Farm. It dispenses with movable fittings of every kind, and cannot be obstructed or broken except by acts of wilful damage, and if so obstructed or broken it admits of ready repair.

Waste-water
flush closets.

This system has been introduced in a large number of instances in the city. It has been introduced experimentally at Nottingham, and highly commended by both the late and present Medical Officer of Health of that town, and it has been also adopted in Providence in America with the most satisfactory results. Its introduction in Birmingham has not been so extensive and rapid as it should have been, owing partly to the distrust of any new system, and partly to adherence to the existing method of cistern and basin. The result during the past severe and prolonged winter has been that, while numberless closets of the latter kind have been rendered useless by the freezing of the water in supply-pipes, cisterns, and basins, and the bursting of the first and last, the simpler closet has remained perfectly unaffected and efficient.

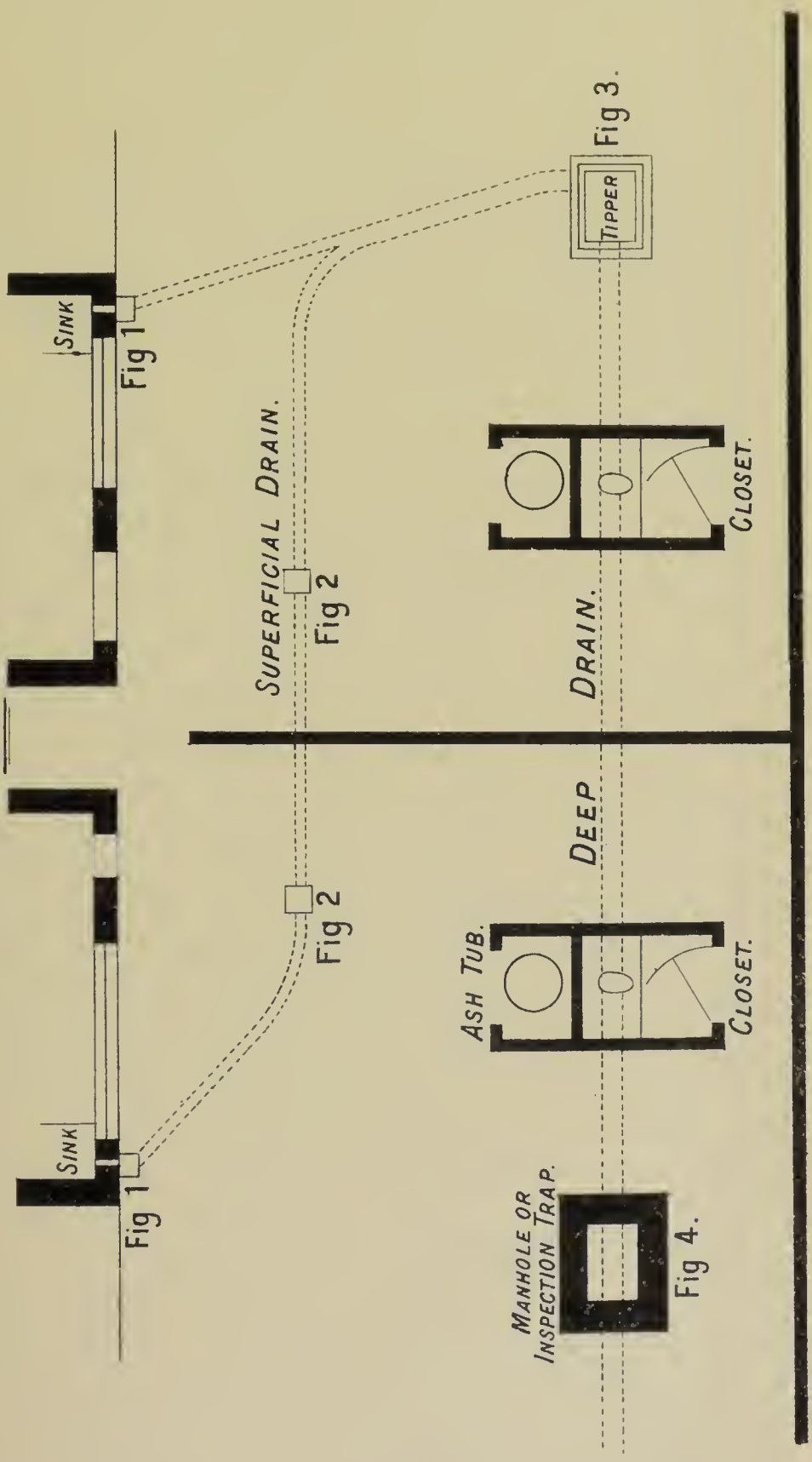
Diagram No. I. represents a plan of premises where the system is in operation.

Fig. 1 indicates the points at which slop-water issues from the backs of the houses, two such points only being represented on the diagram.

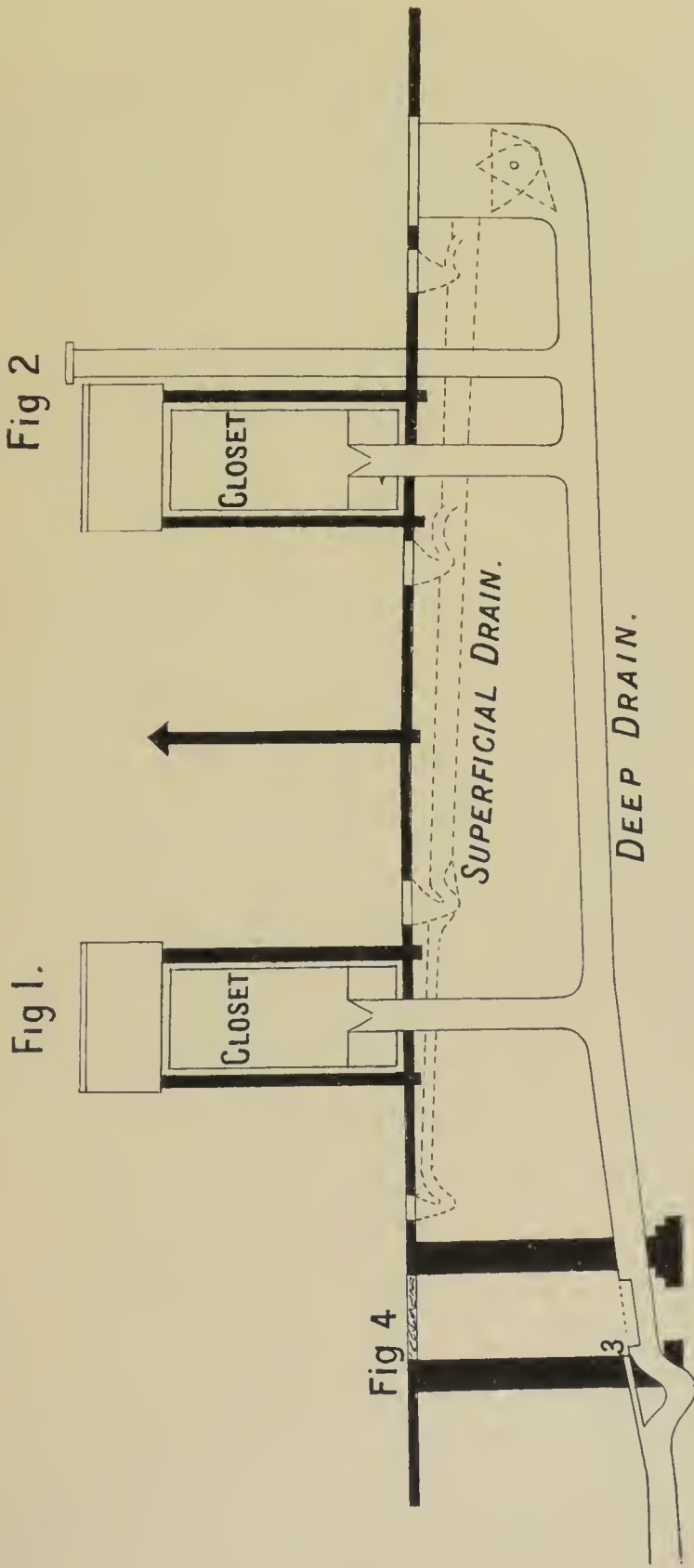
Fig. 2 is a surface trap on the superficial drain which is made to fall from the sewer end to the distal end of the premises. Having reached that point, its direction is either simply reversed, so as to continue its course back to the sewer at a lower level—an arrangement which is sufficient where a considerable number of houses are concerned—or, at the turning point, Fig. 3, a tumbling cistern or “tipper” is placed in a chamber. This tipper being supported on trunnions, tips up when nearly full, and delivers an abundant flush of several gallons of water, after which it immediately swings back into its original horizontal position, to be again filled and actuated by a fresh supply of waste water from the superficial drains. This tipper has been recently introduced by Mr. Allen as an improvement upon the automatic syphon flushing tank originally used. Another modification has also been made by Mr. Allen at the top of the perpendicular pipe of the closet immediately under the seat. Instead of the plain oval opening, furnished with a grid to prevent the introduction of large objects, he has fitted a head provided with a slit about $2\frac{1}{2}$ inches wide, and extending from front to back. This arrangement is shown in Diagram No. II., Fig. 1, and in drawings A and B either the old or the new arrangement may be adopted.

Diagram No. II. shows a section of the drains and closets. Under the closet seat is placed a salt-glazed stoneware pipe, the upper aperture of which is oval, and about 16×14 inches in its diameters, the lower aperture is 11×9 inches; this lower opening is received into a collar on a length of pipe which is cylindrical, 22 inches long and 9 inches wide, in the deep drain, so that the opening into the horizontal drainpipe is larger than the general diameter of the same. The vertical pipe, running from the closet seat to the deep drain, is so shaped that its posterior wall is perfectly vertical, while its anterior wall towards the lower end inclines in a straight line backwards and downwards, causing a narrowing of the lower aperture to enable it to enter the collar, or flange, of the horizontal pipe, which, as I have already said, is 11×9 inches in diameter. This peculiarity in the form of the pipe has for its object the obviation of the soiling of it during use. The narrowing of the pipe represented at its lower end in Diagram III., Fig. 2, is of course not absolutely necessary. The pipes are so thick and strong that it is impossible they can suffer injury, except from great and intentional violence. The deep drain may be composed of pipes of either 6 or 9 inches in diameter, and for 8 or 10 feet before the syphon should have a somewhat increased fall in order to carry everything through it. No syphon should be fixed at a distance of less than 10 feet from the nearest water-closet.

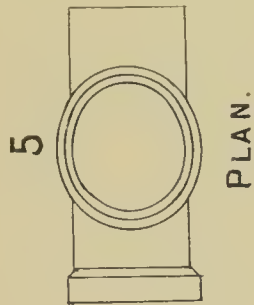
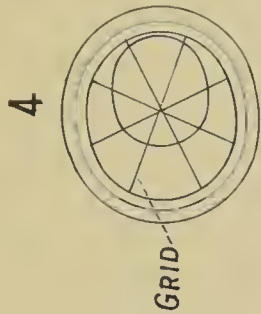
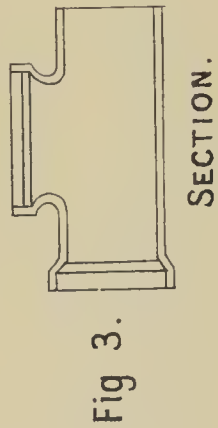
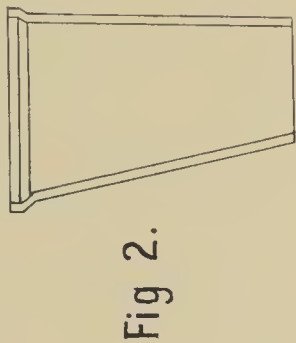
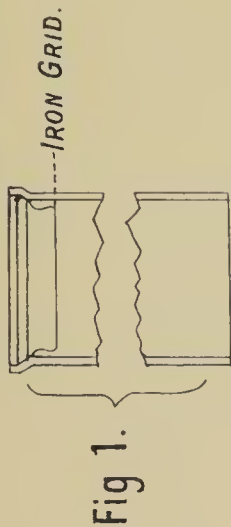
PLAN.



SECTION.

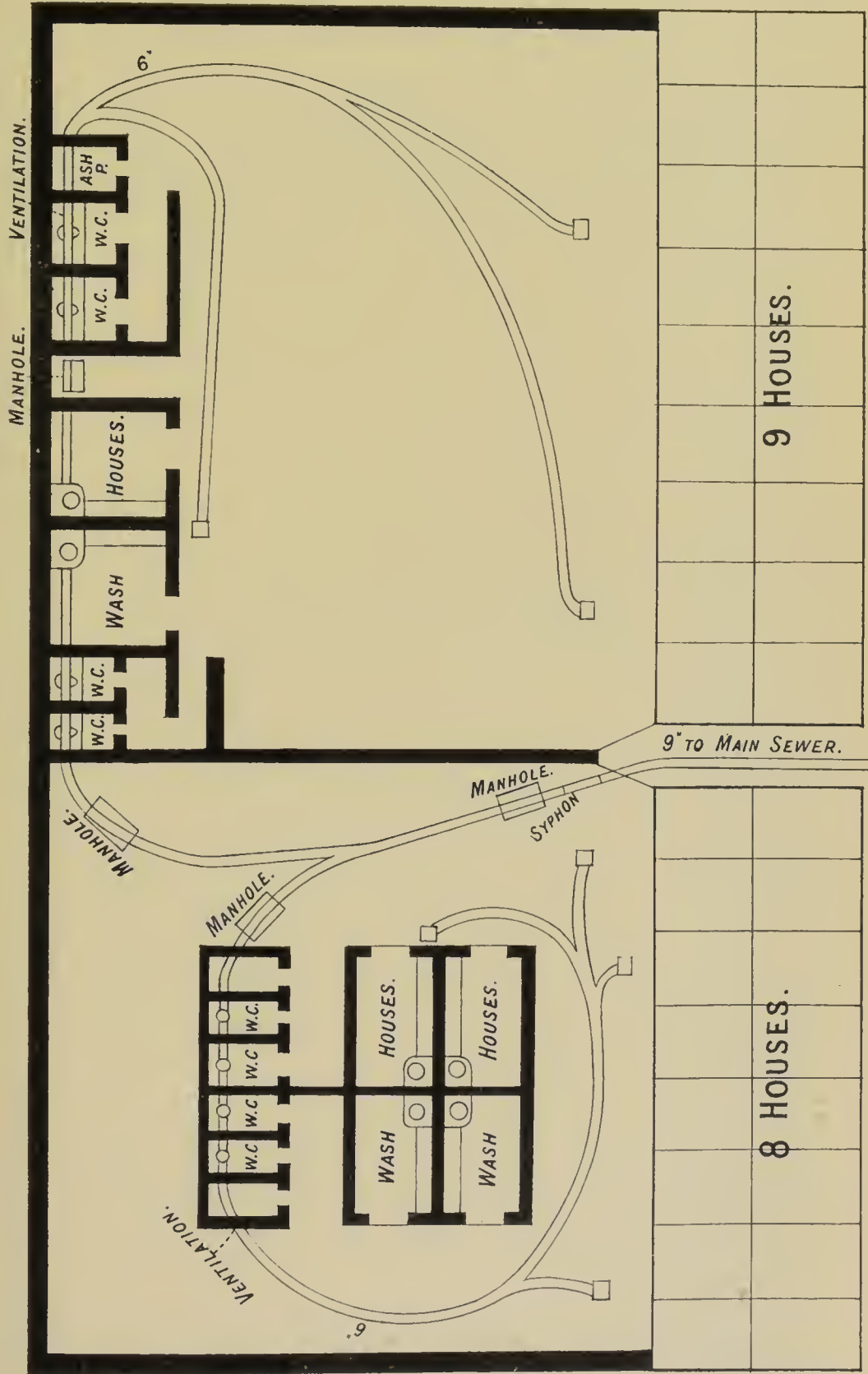


DETAILS OF PIPES.



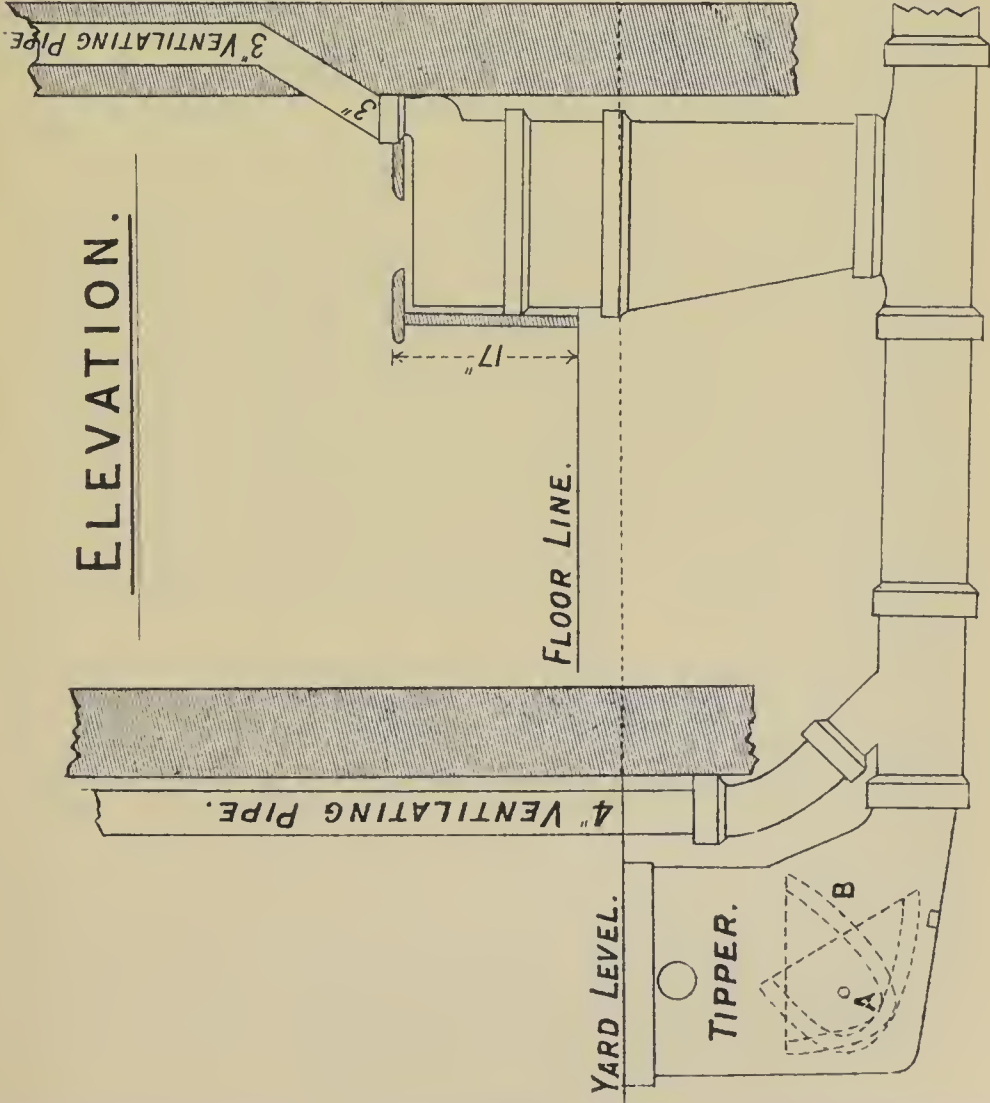
Scale, 2 Feet to 1 Inch.

DIAGRAM N^o IV.

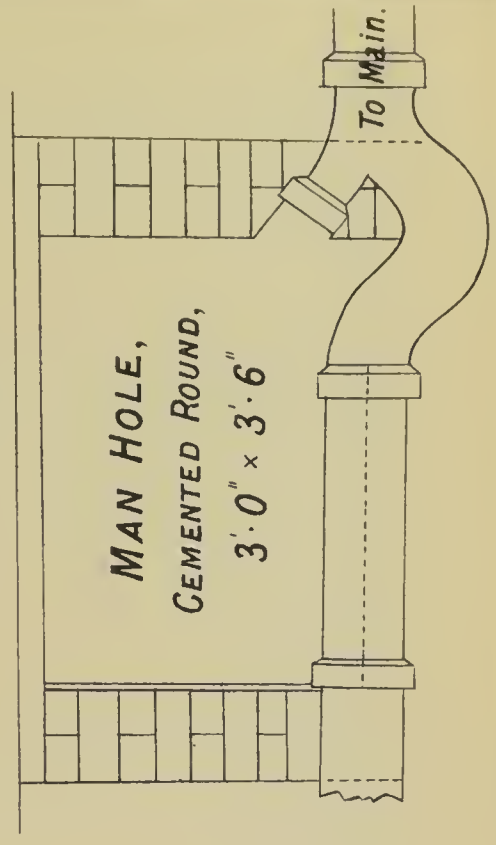


WASTE WATER CLOSET SYSTEM. DRAWING A

ELEVATION.

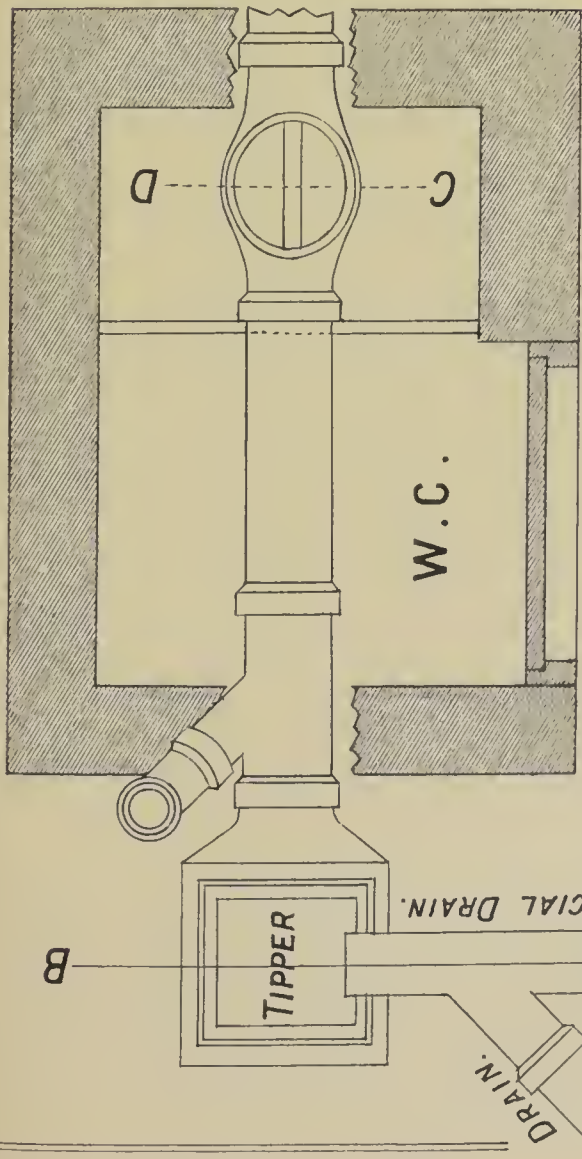


SECTION CD.

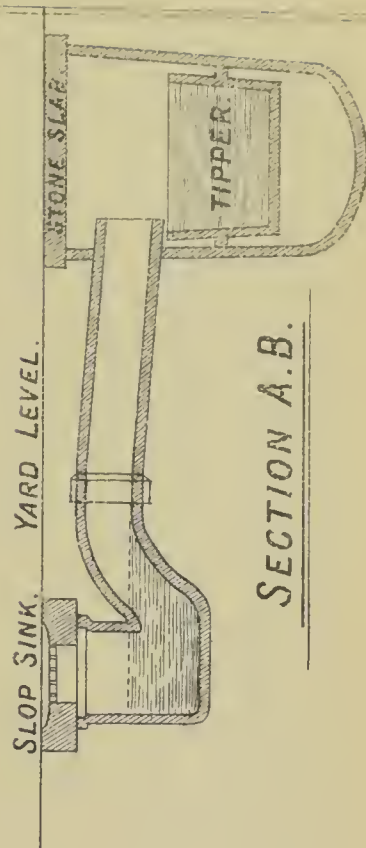
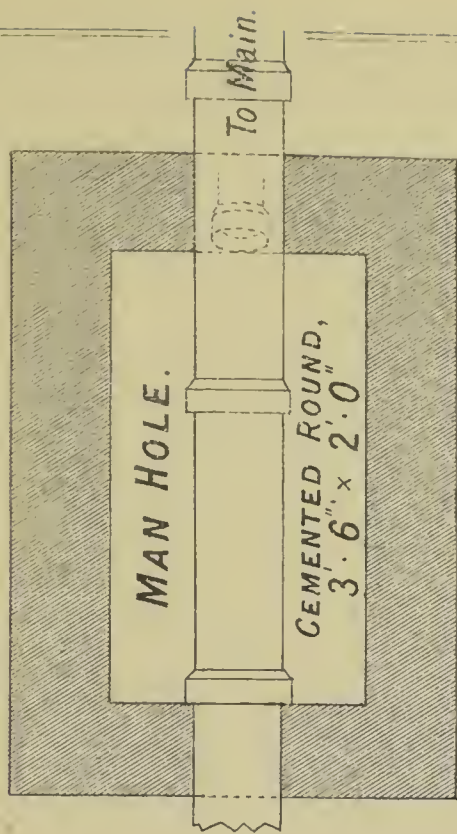


Scale, 1/2 Inch to 1 Foot.

DRAWING B.



Scale, $\frac{1}{2}$ Inch to 1 Foot.



A manhole, or inspection opening, Fig. 4, not less than 3ft.6in. $\times$ 2ft. in diameter, is placed at the point of the drain nearest the sewer, enabling any accidental stoppage to be removed without difficulty. The floor of this manhole is provided with a pipe, the upper half of which is removable, so converting it into an open channel; but it is found desirable in these closets to place the upper convex half of the pipe loosely in position on the lower half, as indicated by the dotted line. The object of this is to prevent an accumulation of paper, or other light substances, at the exit of the floor pipe, which is otherwise liable to occur. It is very desirable to have several manholes on the line of the deep drain—they are constructed at a trifling cost, and are extremely convenient and economical. In case of obstruction of the drain, immediate access to it is obtained on removing the cover, and the drain each way, owing to the introduction of the raking arm (3), can be raked, and any obstructing object cleared away with the least possible trouble, time, and cost.

Waste-water
flush closets
(continued).

Where the series of closets is extensive, some of the vertical pipes may act as air inlets, others as outlets, causing some degree of nuisance. This result may be prevented by the insertion of a ventilating shaft connected with the highest point of the deep drain, as shown at 2, and running up the side of the house in a suitable position.

Diagram No. III. shows the details of the pipes. Figures 1, 2, and 3 represent the vertical pipes and the horizontal pipe in section, the number of pieces of 1 required being decided by the depth of the deep drain. Figures 4 and 5 represent the pieces 2 and 3 as seen from above. All pipe joints are to be made with Portland cement.

Diagram No. IV. represents the plan of drains, manholes, closets, etc., on a property consisting of 17 houses, and needs no further description. The two following drawings A and B will indicate to the builder the exact lines upon which the closet is to be constructed. A working model of the system has been set up in the Inspectors' Offices at the Council House, and may be seen there at any time during office hours.

The advantages of the system are:—

1.—*Healthiness.* Retention and decomposition of excreta, with all their acknowledged evils, are avoided by almost immediate removal.

2.—*Convenience.* In use, no trouble or care of any kind is entailed.

3.—*Economy.* The cost of introduction is as little as, or less than, that of any other system, there being no cistern, mechanism, or fittings of any kind required, so that in working there is no chance of derangement, there is no cost for water, and no breakage or obstruction through frost.

The Chief Constable informs me that twelve persons were summoned for the objectionable offence of throwing filth, etc., on the surface of the streets. In most cases fines of from

Surface filth

2s. 6d. to 10s. were imposed on the offenders. The number is remarkably small, and I could wish to see more activity displayed in the direction of suppressing a most reprehensible and unwholesome practice.

Smoke.

During the year 202 manufacturers were reported for the emission of dense smoke from the chimneys of their business premises. Of these 118 were cautioned not to repeat the offence, and 93 were prosecuted, convictions being obtained in 91 cases.

Improper keeping of Animals.

The nuisance caused by the keeping of animals in and near dwelling-houses has undergone little, if any, abatement. It is a very insanitary as well as unprofitable custom, and I should be glad if stronger measures could be taken to prevent it, as there can be no doubt it is responsible for much atmospheric as well as surface pollution. The practice, if tolerable on private premises, where space is ample, is particularly objectionable in "courts" where the pens are necessarily situated near the house doors and windows, and the whole supply of air to such houses is vitiated by them, and cannot fail to lower the general health of the inmates.

Insanitary Houses in Garrison Lane.

The occurrence of five cases of Typhoid Fever was the cause of my inspecting the houses situated in Maud Place, Garrison Lane. I found them to be in a very insanitary condition. They were damp, partly from defective roofs, and partly from the want of damp courses and spouting. Some of the houses had not been cleansed for as long as seven years. Part of the central yard was paved, but the back yards were not paved at all. The flooring of the pan privies was so broken and irregular as to give lodgment to filth, and make cleansing almost an impossibility. There was a pool of filth outside one of the sets of closets. The downspouts discharged on to the ground, and helped to produce dampness of foundations and walls. The D-trap was choked and pulled up; pigeons were kept in the yard, and there were washtubs at the back of one house. I considered the property unfit for habitation, and recommended that the roofs be repaired, damp courses provided, and the spouts made to discharge over gratings into the drain; that the central and back yards be completely paved, the pigeons removed, and the washtubs abolished. The back yards were paved, but not the central one; proper spouts were supplied, and the joints of the brickwork were raked and filled in with cement. The walls of the living rooms were match-boarded, but no damp courses have been inserted.

Unhealthy Houses in Fisher Street.

A Coroner's Inquest into the cause of death of a woman lodging at 4 court, 1 house, Fisher Street, was the means of calling attention to the property, which I inspected. The court consists of five houses and two workshops, and there are two front houses. Two of the cottages and one workshop belonged to an old woman named Mrs. Arnfield, with whom deceased lodged. The property was in very neglected condition, having no paper on the walls, and the plaster being perished and somewhat damp. There was no through ventilation in the back houses. The yard was unpaved and contained a very

foul ashpit privy, while it was narrow and confined, and hardly admitted of the reconstruction of the houses on a better plan. Mrs. Armfield, the owner of the property, was extremely poor, and as the houses were, in my opinion, unfit for healthy occupation, owing largely to their deteriorated condition, I suggested that the property might with advantage be acquired by the Corporation, and dealt with under Torrens' Act. This course, however, did not commend itself to your Committee, but the houses were much improved by the provision of better means of ventilation, the pavement of the yard, and the conversion of the ashpit-privy to a water-closet.

On September 9th Mr. Kenny wrote to me in reference to a house at the back of 18, Newton Street, where he said "the nightsoil pans are placed so close to the brewhouse that their contents are literally boiled, and they give off a smell which is anything but pleasant." In consequence of this complaint I communicated with Mr. Davis, Manager of the Improvement Scheme, who undertook to have the pans replaced by water-closets in a better situation. This has accordingly been done.

Badly situated
"pans."

The attention of your Committee having been called to the condition of Bolton Street and Little Edward Street, I visited and inspected them. I found that the streets were neither sewered, kerbed, paved, nor guttered. In Bolton Street the surface was worn into deep furrows, owing to the want of proper channels to carry off the rainfall. These furrows are liable to harbour filth, and are positively dangerous for vehicular traffic. The tenants of houses in the street complained that in wet weather they were unable to leave their houses by the front doors. The atmosphere of one house was so damp that the grates and fire-irons were always rusty. The woman at this house stated that her children were constantly under medical treatment. In Little Edward Street there were some old drains which were ineffective, while the street was wet and filthy, owing to the accumulation of solid impurity and the lodgment of offensive liquid, which could not drain away. I reported that I considered it imperatively necessary, in the sanitary interests of the inhabitants, to make sound the surface of the two streets, and to sewer, kerb, pave, and gutter them. The work necessary for this is either completed or is now in progress.

Want of sewers,
etc., in Bolton
Street and Little
Edward Street.

A number of complaints have been received of the smells from sewer gratings in different parts of the town, particularly at Edgbaston. In connection with this matter I made the following report :—

Nuisance from
Sewers.

"I visited Messrs. Hammond, Turner and Co.'s manufacturing premises in Snow Hill, and was present when the boiler-water was blown out. It was discharged at 21lbs. steam pressure directly into the drain. The steam issued from the various openings in Great Charles Street and Snow Hill. The great heat of the water and steam is, under these circumstances, calculated to be very injurious to the brickwork of the sewer, to cause or increase nuisance by expelling sewer gas, and therefore to



Notification
of Infectious
Diseases.

be prejudicial to health. This firm was the only one that was blowing-off on that day. I visited, however, Messrs. Taylor and Challen's works in Constitution Hill, and they explained and showed me the arrangement for discharging their boiler. They do not blow-off in emptying the boiler, but first allow the contents to cool down, and to run out without steam pressure into an underground tank on the premises before running it into the sewer. This they do as much for the preservation of their boiler as for any other reason, as they think a sudden cooling of the boiler is very injurious to it. As engineers they are aware of this fact, which ordinary boiler-users seem not to be. They clean their boilers by chipping and scraping, and only blow-off occasionally for about half a minute to expel the boiler-mud. This method of proceeding might be required, therefore, with advantage not only to the public but to the private manufacturer also."

ii. *The causes, origin, and distribution of disease.*—

I have much pleasure in recording the adoption by the City Council of the Infectious Disease (Notification) Act, 1889, which was ordered by the Council to come into force on January 20th, 1890. I have for some years been quite convinced of the importance of compulsory notification of dangerous infectious diseases, and have strongly advocated the system which is now introduced. The chief provisions of the Act are as follows:—

Section 3.—(1.) Where an inmate of any building used for human habitation within a district to which this Act extends is suffering from an infectious disease to which this Act applies, then, unless such building is a hospital in which persons suffering from an infectious disease are received, the following provisions shall have effect, that is to say:—

(a) The head of the family to which such inmate (in this Act referred to as the patient) belongs, and in his default the nearest relatives of the patient present in the building or being in attendance on the patient, and in default of such relatives every person in charge of or in attendance on the patient, and in default of any such person the occupier of the building, shall, as soon as he becomes aware that the patient is suffering from an infectious disease to which this Act applies, send notice thereof to the medical officer of health of the district:

(b) Every medical practitioner attending on or called in to visit the patient shall forthwith, on becoming aware that the patient is suffering from an infectious disease to which this Act applies, send to the medical officer of health for the district a certificate stating the name of the patient, the situation of the building, and the infectious disease from which, in the opinion of such medical practitioner, the patient is suffering.

(2.) Every person required by this section to give a notice or certificate who fails to give the same, shall be liable, on summary conviction in manner provided by the Summary Jurisdiction Acts, to a fine not exceeding forty shillings.

Notification of
Infectious
Disease
(continued).

Section 6.—In this Act the expression “infectious disease to which this Act applies” means any of the following diseases, namely :—Small-pox, cholera, diphtheria, membranous croup, erysipelas, the disease known as scarlatina or scarlet fever, and the fevers known by any of the following names :—Typhus, typhoid, enteric, relapsing, continued, or puerperal.

Section 13.—(1.) The provisions of this Act shall apply to every ship, vessel, boat, tent, van, shed, or similar structure used for human habitation, in like manner as nearly as may be as if it were a building.

Section 16.—The expression “occupier” includes a person having the charge, management, or control of a building, or of the part of a building, in which the patient is, and in the case of a house the whole of which is let out in separate tenements, or in the case of a lodging-house the whole of which is let to lodgers, the person receiving the rent payable by the tenants or lodgers, either as his own account or as the agent of another person, and in the case of a ship, vessel, or boat, the master or other person in charge thereof.

Copies of the above provisions were publicly posted in the town, and were sent, together with a circular, of which the following is a copy, to all medical practitioners residing in Birmingham :—

“ *City of Birmingham.*

“ The Council House,

“ Birmingham,

“ 4th January, 1890.

“ THE INFECTIOUS DISEASE (NOTIFICATION) ACT, 1889.

“ Dear Sir,

“ I enclose a print of a handbill published by the Council, from which you will see that this Act has now been adopted, and will come into force within this City on the 20th January instant.

“ The fees payable by the Council to medical practitioners for Certificates under the Act are—

“ Two shillings and sixpence, if the case occurs in his private practice ; and

“ One shilling, if the case occurs in his practice as medical officer of any public body or institution.

“ Upon the Act coming into force, the arrangements previously made for the voluntary notification of infectious disease will, of course, cease.

“ Forms of certificate and counterfoils have been prepared and lightly bound in books of 10, 25, and 50. I shall be happy to supply you with the same, free of charge, upon hearing from you the number that you think you will require.

“ In giving you this notice, I have to thank you, on behalf of the Health Committee and myself, for the assistance you have rendered us in notifying disease in the past.

“ Yours faithfully,

“ ALFRED HILL, M.D., F.I.C.,
“ *Medical Officer of Health.*”

In Table IX. in the appendix will be found the weekly numbers of cases reported in accordance with the Act. The numbers are, as I anticipated they would be, very much larger than they were while the notification was merely voluntary, and it is evident that under the voluntary system a very considerable proportion of cases which unquestionably required investigation never came to my knowledge. I trust that, now that all cases of a dangerous nature come under notice, a very beneficial effect will be seen on the Zymotic mortality in the town.

I am pleased to say that the fears entertained in some quarters that friction would arise between the Medical Officer of Health and the medical profession have not been realised. I have almost invariably met with the utmost courtesy in the carrying out of the Act, and I wish to take this opportunity of publicly expressing my thanks to the medical men in the town, who have so loyally assisted me in the work.

No case of Small-pox, Cholera, or Relapsing Fever was reported during the 50 weeks in which compulsory notification was in force. Of Diphtheria, 223 cases were reported, while 60 cases of Membranous Croup, a disease closely allied to diphtheria, were notified. The cases of Erysipelas numbered 395, the very large number of 156 occurring in the fourth quarter; in the first and second quarters the number of cases were much smaller. The cases of Scarlet Fever amounted to 2,995. They were fewest in the first quarter of the year, when, in fact, a marked falling-off took place; in the other three quarters they were more numerous, the largest weekly number being 93 in the last week of September. A single case of supposed Typhus Fever was reported to me on September 13th. As I thought the diagnosis in this case was probably at fault, I asked Dr. Joynt, of the City Hospital, to visit the patient, in consultation with the Medical Attendant. He was of opinion that the disease was not Typhus Fever. Typhoid Fever was reported

in 272 instances, much the greater number being in the fourth quarter; it is in autumn that this disease is generally most prevalent. Few cases of Simple Continued and Puerperal Fever have been notified, viz., 14 of each disease.

Notification of
Infectious
Disease
(continued).

In all the above cases an examination of the premises occupied by the patient was made—in some instances by the Assistant Inspectors alone, and in others by myself also. The object of this inspection was, of course, to discover whether any insanitary conditions existed that would be likely to cause the illness. In many cases serious sanitary defects were found, and promptly remedied. Among them may be mentioned defective drainage, want of cleanliness, defective ventilation, improper privy accommodation, keeping of animals, &c. In every case of Scarlet Fever steps were taken to have the patient removed, if possible, and then to purify the house by fumigation with sulphur, and by stripping and linewashing the walls and ceilings, and disinfecting the bedding and clothing. By these means no doubt the prevalence of the disease has been greatly checked.

Throughout the year the usual notices have been sent, informing the heads of schools of the attendance there of children from houses in which Scarlet Fever existed, and asking their assistance in preventing such children from associating with the other scholars. In one instance the information as to what school had been attended by a child who had contracted Scarlet Fever, led to the discovery of a private school in which the cubic space and the means of ventilation were quite inadequate. As sanitary considerations demanded that this state of affairs should be altered, an order was made for the closure of the school.

Schools and
Infectious
Disease.

On the 24th of June Dr. Richards informed me that a patient under his care was suffering from Scarlet Fever, and had attended St. James's Schools, Summer Road. From what he heard it appeared that two scholars were attending that school while desquamating from Scarlet Fever. I enquired into the matter, and found that the boys in question had had no medical attention, and their mother told the Assistant Inspector they had had Bronchitis. He saw the boys, however, at the school, and they were then desquamating copiously. On the following day Mr. Manning and Mr. Loxton, surgeon, visited them, and pronounced them to be suffering from Scarlet Fever. They were immediately removed to the City Hospital, and the schools in Summer Road were thoroughly fumigated. These cases afford striking proof of the necessity for notification, and an illustration of the dangers resulting from a neglect of it.

iii. *Advice to the Sanitary Authority on matters affecting the Public Health.*—

Advice to the
Sanitary
Authority

A large part of my advice to your Committee will be found in the other sections of my Report, being given in connection with the particular conditions to which my recommendations referred.

In June I was asked to report upon the use of a mixture of soot and salt as a deodoriser of the excreta contained in "pans," and did so as follows :—

"In reference to Minute No. 877, I beg to report that I have made a series of experiments to determine the deodorising effect of a mixture of soot and salt as used for 'pans' by the Interception Department. The soot and salt and 'pan' contents were furnished to me by Mr. Wilkinson.

"In these experiments I first used the proportion of soot and salt to 'pan' contents in use, according to Mr. Wilkinson, at the present time, viz., four ounces of the mixture to each gallon of 'pan' contents. At the end of a week the portion treated with the mixture was fully as offensive as an untreated portion.

"I then made similar experiments with twice the above quantities, and with the same results.

"Finally I submitted a third portion to similar treatment with four times the quantity of soot and salt mixture. The largely increased quantity of the mixture had no perceptible influence in deodorising the excrementitious matter. I did not proceed to test the effect of larger quantities, because I presume the expense of the mixture would be prohibitive to the use of more. These results only confirm the opinion I previously held that such small quantities of weak chemical agents like soot and salt are not calculated to exert any deodorising effect.

"I may further state that the pans which I have examined on premises where I had gone to investigate cases of Zymotic disease have proved just as offensive as when no soot and salt had been employed.

"No doubt even soot and salt, in very large quantities and added each time the pan is used so as to be well incorporated, and to absorb all moisture in a manner similar to the working of an earth closet, would have a similar effect; but, of course, such an application of the mixture is altogether out of the question on all grounds."

The Rivers Purification Company having made an offer to undertake the disposal of the sewage and refuse of the town. I was instructed to obtain information of their system. I found its main features to be as follow :—The dry refuse to be dealt with is carbonised by slow combustion in specially constructed ovens, and afterwards sifted into different grades of charcoal. The coarser grades are used to form the lower layers of shallow filters, and the finer to form the upper layers. The sewage to be disposed of is first passed through settling tanks, and through cages filled with cokes of various grades, by which means the solids are for the most part removed. The liquid remaining is then passed through the filters already mentioned,

from which it issues as a purified effluent fit to be admitted into a stream. The excreta from pans is mixed with the sewage sludge of the settling tanks, and sold or given away to farmers.

Suggested
system of
Refuse
Disposal
(continued).

I reported upon the above system as follows :—

“The method is based on reasonable mechanical and chemical principles and methods, and appears to yield a satisfactory effluent. It is no doubt well adapted for certain small communities where it is impossible to obtain suitable land, and where the quantity of sewage to be dealt with is not very large ; but it seems very doubtful to me whether it is desirable to treat by so artificial a method a daily quantity of sewage measuring 18 millions of gallons, and particularly when we have a natural filter ready to our hand in the twelve hundred acres of land at the Sewage Farm. There remains the question of cost, which is more one for the Engineer of the Sewage Farm than for me. The offer to dispose of the sewage of Birmingham and contributory districts at 6d. per head seems tempting, as it is only half the present cost, as I am informed ; but apparently there are matters not included in this estimate which would seriously increase it. This is a point which you may think it necessary to consider in more detail ; but I should be surprised to find that an artificial process can be carried out more conveniently than a natural one.”

At the request of your Committee, I visited and inspected twenty-three properties which had been selected by the sixteen Assistant Inspectors as being in their opinion the worst properties on their districts. In most cases each block of property consisted of certain front houses and a number of dwellings at the back, in some instances as many as twenty houses being comprised in one block. After describing each property in detail, I summed up the results of my examination of them in the following words :—

Inspection of
Defective
Dwelling-
houses.

“A consideration of the conditions of these properties shows that a majority of them present nothing exceptional to hundreds of others, and that they simply require to be repaired and cleansed in the ordinary course. In most cases they are situated in courts, and they are built back to back, a form of construction very faulty, but not admitting practically of any immediate remedy. Most of the evils, however, are removable, and ought to be removed.

“It is difficult to realise the improvement in healthiness which the properties would exhibit in consequence. The evils may be summed up as consisting principally of—

- “1.—Damp walls and floors of houses.
- “2.—Unpaved and defectively paved yard surfaces.
- “3.—Filthy condition of surface.
- “4.—Accumulations of refuse.
- “5.—Excremental nuisances.

Inspection of
defective
dwelling-houses
(continued).

“The first-named defects (damp floors and walls of houses) are due to the absence of damp courses and to defective spouting; the former ought to be supplied at once, and the latter repaired.

“The second in order (unpaved and defectively paved yard surfaces) are easily remediable, and ought to have been disposed of years ago.

“The third heading (filthy condition of surfaces) comprises conditions which depend to a great extent on those stated in the second; as it is impossible to keep clean a surface which is defectively paved or altogether unpaved.

“The accumulations of refuse of all kinds can only be dealt with by the proper and periodical scavenging of the courts, and washing down of their surfaces, as I recommended in my evidence at the Artisans’ Dwellings Enquiry, six years ago, and as has been done for some time in London among other places.

“Excremental nuisances caused by retention of faecal matter in close proximity to dwellings should be abolished as rapidly as possible. The want of proper closet provision for children is a source of much unhealthiness, as, owing to the difficulty of their using seats provided for adults, the surfaces of the yard and closet are made to receive their excreta, causing a filthy and disgusting condition of ground and soil and atmosphere, besides being trodden about and conveyed into the houses.”

Danger from
Disused Wells.

During my inspection of premises in the City I have frequently noticed a sinking of the ground, and on enquiry have found that the sinking indicated the position of a disused well, covered over, of course, but not filled up. There seems to me in many cases to be considerable risk of the covering giving way, with the possibility of engulfing anyone who might happen to be passing over it. I would suggest that the attention of property owners be called to this danger, so that they may be reminded of the desirability of guarding against the danger.

Water Closets
in Basements.

I wish also to call attention to the growing practice of placing water closets in the basements of new houses. This position I consider to be extremely undesirable, as a closet so placed is likely to become a standing nuisance, exerting an injurious effect on the health of the tenants. I therefore recommend that the construction of water closets in such positions be prohibited.

iv. *Outbreaks of Infectious, Contagious, or Epidemic Diseases.*—

Epidemic of
Influenza

In the first quarter of the year the town suffered from an epidemic of Influenza, which was then prevalent throughout England and the continent. Cases of this complaint did not come under my notice officially, and I am hence unable to give

particulars of the visitation. It appears, however, from the returns of public institutions since issued, that a large number of cases occurred in the town, while in a considerable number of instances Influenza was given on the medical certificate as either the primary or secondary cause of death. The exceptionally high mortality from respiratory complaints was no doubt due to the extreme variability of the temperature, and not to unusual or long-continued cold weather, such as is often experienced in the first quarter of the year. The Influenza epidemic, whether the result of some special agent or merely of the remarkable climatic conditions prevailing, especially the north-east winds, is intimately connected with the exceptional mortality of the winter quarter.

Epidemic of
Influenza
(continued).

During the summer so considerable a number of attacks of Choleraic Diarrhœa occurred at St. George's Terrace, Cooksey Road, as to make a special enquiry into their origin desirable. I accordingly visited and inspected the terrace. I found that the property was in a very bad state, and consisted of the worst class of "jerry" built houses. There was hardly a trap in good working order, almost all of them being either broken or loose in their setting. The drains had just previously been obstructed, and the yard flooded with drainage. The pan closets adjoined the kitchens, and were universally complained of as a serious source of nuisance; eighteen of them were placed on an area of 370 square yards. The pavement of the yard was defective, having in some places fallen quite below the original level; there were loose bricks lying about the yard detached from their setting. In one case the water pipe had burst, and water was issuing through the brickwork. Fowls were kept in no less than five places in the yard. Over all the washhouses there were soft-water cisterns, most of them dis-used and containing foul, stagnant water. The cases seemed to me to be due, not to poisoning by food, but to the insanitary surroundings, and I advised the conversion of the pan privies to water-closets, the removal of the soft-water cisterns, the pavement of the yard, and the overhauling and trapping of the drains.

Choleraic
Diarrhœa in
Cooksey Road.

Owing to the occurrence of several suspicious cases of blood-poisoning at the "Cottage Inn," St. Vincent Street, my attention was directed to the condition of the premises. The kitchen was separated from the closet by a wall with a fire-place attached, and was said to smell offensively at times. The cellar was damp, and also had a disagreeable smell. The midden privy had been converted to a water-closet, but there was reason to suspect that the foundation of the house might be saturated with midden drainage. At my suggestion the cellar was well ventilated by making opposite openings. The ground was also opened to see if any leakage took place from the drain, but none was discovered, the soil being in good condition. No cases of preventable illness have since occurred there.

Blood Poisoning
in St. Vincent
Street.

Diarrhœa in
Conybere Street

In June seven cases of severe Diarrhœa at 142, Conybere Street, were reported to me by Mr. Councillor St. S. Wilders, caused, he considered, by the position of the pan privy. I found that seven out of the nine inmates of the house, male and female, had been ill. The sink was not trapped, and the pan privy was exactly opposite to, and only 3 feet from, the house door. The smell from it was perceptible in the house, and I recommended that it be converted to a water-closet. This, however, the owner absolutely refused to do.

v.—*Examination of and action in regard to Suspected, Diseased, or Unwholesome Food.*

Unwholesome
Food.

From the returns made by Mr. Birkley, Superintendent of Markets, it appears that 23 seizures of bad meat were made during the year, and that 464 lots of meat were handed over to the inspectors by the owners, who found it to be unfit for use. The total quantity destroyed amounted to more than 47 tons. Summonses were taken out against four persons for exposing bad meat for sale; three of them were sentenced to imprisonment without the option of a fine, and in one case the summons was dismissed.

In addition to the above, over 17 tons of fish and game were destroyed. This amount comprised 57 seizures and 152 voluntary surrenders. Two vendors were summoned and convicted, the penalties and costs amounting to £41 3s. 0d.

Over 12 cwt. of unsound fruit was also discovered, seized, and destroyed.

vi.—*Duties under Sanitary Bye-laws and Regulations.*

Such duties relate to Common Lodging Houses, Houses Let in Lodgings, Slaughterhouses, Dairies, Cowsheds, and the Places for the Storage and Sale of Milk.

COMMON LODGING HOUSES.

Common
Lodging
Houses.

The number of registered Common Lodging Houses continues to decrease. It was 87 at the end of 1890, against 91 in 1889. The Bye-laws relative to such houses are directed to preventing the overcrowding of rooms, keeping single men and women from occupying the same sleeping apartment, securing cleanliness and good ventilation, and protecting from the spread of communicable diseases. With a view to enforcing these bye-laws, 13,255 visits have been made to the houses, 12,030 by day and 1,225 by night. Three lodging-house keepers were summoned for offences against the Bye-laws, one being fined for allowing persons of both sexes to occupy the same sleeping room.

HOUSES LET IN LODGINGS.

Houses let in
Lodgings.

The number of these at the end of the year was 128, and they were registered under the provisions of the Public Health Act to accommodate 725 lodgers.

SLAUGHTERHOUSES.

The number of Slaughterhouses in the City remains at 256; 126 are licensed and 130 registered. They are inspected by the officers of the Markets and Fairs Committee, who paid 8,222 visits to them. Slaughter-houses.

During the year I inspected two buildings proposed to be used as Slaughterhouses—one in Digbeth and one in Summer Lane. After certain improvements had been made I recommended that permission be given for their use for the purpose.

Early in the year my attention was called to a slaughterhouse in Ashted Row. I inspected it, and reported that its position, arrangements, and condition were such as to make it totally unfit for the purpose for which it was used. The required structural alterations and improvements were made, and its use has since been sanctioned.

During the year the question of establishing a Public Abattoir has been fully discussed. My opinion having been asked on the subject, I reported as follows:—

“I have always maintained the desirability of reforming the present system of Slaughterhouses and substituting for them a Public Abattoir, and this view I have expressed in my report almost every year since my appointment as Medical Officer of Health. Perhaps I cannot do better than reproduce my views on this subject in the words of my first report for 1873. ‘The Slaughterhouses of the Borough at present are 301 in number, but the number varies from time to time. It is, however, their gradual diminution which should be aimed at, for though they are as frequently inspected as their number and position admit of, and generally fairly clean and well managed, though imperfect in construction, yet some are situated in improper places, and are crowded and deficient in space. The evils of a large number of Slaughterhouses are numerous. For instance, it is difficult to inspect them as often as necessary; if neglected they are sources of nuisance from accumulations of blood, offal, and refuse; they are the means of introducing into the drains and sewers matters apt to lodge there, and to generate offensive and injurious gases; and their large number and distance apart render it easy to kill and dress animals which are unfit for human food without detection by the Inspector.

‘In Paris, Manchester, and some other places, public slaughterhouses have been established, few in number, but large, well appointed as to water supply, light, ventilation, drainage, imperviousness to liquids, provision for the daily removal of offal and refuse, and admitting of inspection every day, and indeed at all times, and so supplying a check to general nuisance, and the means of extinguishing the trade in unwholesome meat, which is so common and so difficult to detect under present arrangements.’

Abattoir
(continued).

“ One of the greatest drawbacks to the large number of Slaughterhouses scattered all over the town is that the refuse from them accumulates in the sewers, and gives rise to offensive gases, which are not only a nuisance at the point of their production, but which travel for long distances with the same result. If, instead of nearly 300 Slaughterhouses, there were only one Abattoir, this evil would be reduced to a minimum, as means could be adopted for intercepting the principal part of the animal refuse, and for periodical flushing of the sewer in a really efficient manner.”

I also reported that the site which the Markets and Fairs Committee had selected appeared to me to be good and unobjectionable, and I have now to express my great satisfaction that the City Council have decided to erect both a new Cattle Market and an Abattoir, as I feel sure that its effect will be altogether beneficial.

DAIRIES, MILKSHOPS, AND COWSHEDS.

Dairies and
Milkshops.

The Assistant Inspector paid 3,382 visits to the Dairies and Milkshops in the City during the year. Orders were given to cleanse and limewash 119 shops, 97 cellars, and 84 pantries. Dirty vessels were found in 9 instances only. The sale of vinegar and pickles in Milkshops was discontinued in 147 cases; that of tripe, fish, or petroleum in 21 others.

Out of 206 applications for permission to sell milk, 91 were granted, the premises being unsuitable in the other instances; 10 persons were also registered as purveyors merely, having no shop. The total number of registered Milkshops at the end of the year was 1,614.

The cases of Infectious Disease at Milkshops numbered 23, viz., 18 of Scarlet Fever, 4 of Diphtheria, and 1 of Typhoid Fever. In each case the sale of milk was stopped till all danger of infection was past.

Cowsheds.

The Assistant Inspectors paid 1,599 visits to Cowsheds during the year. I reported in 1889 that but little improvement in their condition and management could be effected till proper regulations had been drawn up for their control. I now have to record that such regulations are made, and came into force on March 1st of the present year, but that I consider them to fall far short of what is necessary for efficient control.

Pleuro-
Pneumonia.

No case of Pleuro-Pneumonia was found during the year.

CANAL BOATS ACTS, 1877 AND 1884.

Canal Boats
Act

Seven hundred and seventy-four Boats were inspected during the year, and altogether 2,240 persons were found on them. Contraventions of the Canal Boats Acts were discovered in 89 instances. In 26 overcrowding was found, 2 boats were dirty, 1 had not had the cabin painted within the last three years, another was dilapidated, and 3 had no means of ventila-

tion. In all cases of contravention written notices were sent to the owners, and were generally attended to. In one instance, however, legal action had to be resorted to, the offence being overcrowding; a fine of 10s. and costs was imposed.

Three cases of Diphtheria were discovered during the year. They were all in children belonging to one family, and occurred on two boats. Two of the children were removed to the Children's Hospital, and in each case the boat was properly disinfected.

BAKEHOUSES.

The Assistant Inspector has made 1,172 inspections of ^{Bakehouses.} bakehouses in the city, which now number 512. Orders for cleansing were given in 135 instances, but in most respects there was less fault to be found with the condition and arrangement of the buildings than in 1889. No bakehouse was found with a drain in the interior, and no animals were discovered. In four cases the ventilation was insufficient and was improved.

The employment of youths was reported in 21 instances; in each case intimation was sent to H.M. Inspector of Factories, in order that he might satisfy himself that such employment was in accordance with the provisions of the Factories and Workshops Act.

vii. *Offensive Trades.*—

An application was made to your Committee for permission ^{Offensive Trades.} to carry on the business of tallow-melting in Bradford Street, and I was instructed to report on the suitability of the premises for such a use. I found them to be situated in a populous part of the City, and in close proximity to dwellings. The trade, carried on in such a situation, could not have failed to be a nuisance, and I recommended that the application should be refused, which was done.

Considerable nuisance has resulted from the establishment and carrying on occasionally, on a comparatively small scale, of the processes of varnish-making and oil-boiling at Merry's Oil and Colour Establishment, in Suffolk Street and Swallow Street. Owing to complaints received, I enquired into the conditions under which the trade was being conducted. I found that no license had been applied for, and that no provision whatever was made for destroying or properly carrying off the fumes. The air of the neighbourhood for a considerable distance was consequently charged with offensive vapours. It would be difficult to find a more unsuitable situation for such a process of trade, and it will be necessary to guard against its being so conducted as to become a standing nuisance to the locality.

Fortnightly
Reports of
Medical Officer
of Health.

viii. *Fortnightly Reports of the Medical Officer of Health to the Health Committee.*—I have from time to time reported to your Committee on various questions, including the following :—

1. The general health of the City, including the total death-rate, Zymotic death-rate, and average age at death.
2. The occurrence of Infectious disease, and the results of the investigations of certain of the most dangerous cases.
3. The Waters supplied by the Corporation, and from other sources.
4. Articles of Food, Drink, and Drugs, obtained for analysis, and the analysis of articles of a miscellaneous character.
5. Diseased and unwholesome food.
6. Reports on special questions in pursuance of resolutions, instructions, and otherwise.

CITY HOSPITAL.

City Hospital.

I learn from Mr. Manning, the Medical Superintendent, that the total number of cases admitted into the City Hospital during 1890 was 2,525. During the first quarter there was a gradual decrease in the number of patients, but throughout the second, third, and early part of the fourth quarter an increase was manifested, culminating in October and November, after which the number fell. During October and November over 500 patients were under treatment. This number strained to the utmost the accommodation of the hospital, the cubic space being at this time insufficient to allow the proper amount per patient. During this period the want of a proper isolation ward was greatly felt. The inadequacy of the administrative buildings also caused considerable difficulty. This will be readily understood when it is remembered that the present kitchen-stores and laundry were provided to meet the wants of the hospital at the time when it contained some 60 to 100 beds.

During the autumn months the ambulance service proved insufficient, and in order to remove cases the same day on which they were reported, it was necessary to fetch two or more patients in the ambulance at the same time.

The health of the staff has not been satisfactory, anæmia, neuralgia, debility, colds, bronchitis, and rheumatism having been prevalent owing to the defective housing accommodation. The temporary wood huts were most unsatisfactory; during the cold weather the thermometer frequently stood below freezing point. Seven assistant nurses and two ward servants developed Scarlet Fever, none of the cases proving fatal.

The numbers of cases both of Scarlatina and Smallpox City Hospital,
admitted to the Hospital in each quarter since the opening of Cases admitted
the first wards are as follows:— each year.

DATE.				Smallpox.		Scarlatina.		Total Cases.
1874.								
4th Quarter	...	...	...	194	...	—	...	194
(2nd Nov. to the end of the year)								
1875.								
1st Quarter	...	...	...	186	...	—	...	186
2nd „	..	...	...	169	...	—	...	169
3rd „	...	...	...	53	...	13	...	66
4th „	...	...	...	12	...	7	...	19
Totals	...	...	...	420	...	20	...	440
1876.								
1st Quarter	...	...	...	2	...	1	...	3
2nd „	...	...	...	2	...	4	...	6
3rd „	..	...	...	2	...	5	...	7
4th „	...	...	...	5	...	28	...	33
Totals	...	...	...	11	...	38	...	49
1877.								
1st Quarter	...	...	...	4	...	20	...	24
2nd „	...	...	...	19	...	7	...	26
3rd „	...	...	...	15	...	13	...	28
4th „	...	...	...	0	...	3	...	3
Totals	...	...	...	38	...	43	...	81
1878.								
1st Quarter	...	...	...	3	...	13	...	16
2nd „	...	...	...	4	...	34	...	38
3rd „	...	...	...	6	...	139	...	145
4th „	...	...	...	7	...	238	...	245
Totals	...	...	...	20	...	424	...	444
1879.								
1st Quarter	...	...	...	1	...	60	...	61
2nd „	...	..	...	0	...	37	...	37
3rd „	..	...	...	3	...	40	...	43
4th „	..	..	...	0	...	47	...	47
Totals	..	...	...	4	...	184	...	188
1880.								
1st Quarter	..	...	...	2	...	45	...	47
2nd „	..	...	...	3	...	27	...	30
3rd „	...	...	...	8	...	36	...	44
4th „	..	..	...	3	...	62	...	65
Totals	...	...	..	16	...	170	...	186

City Hospital.
Cases admitted
each year
(continued).

DATE.				Smallpox.	Scarlatina.	Total Cases.
1881.						
1st Quarter	...	...	...	8	36	44
2nd "	...	...	...	8	79	87
3rd "	...	...	...	1	91	92
4th "	...	...	...	0	127	127
Totals	...	...	...	17	333	350
1882.						
1st Quarter	...	...	...	0	90	90
2nd "	...	...	...	54	120	174
3rd "	...	...	...	38	197	235
4th "	...	...	...	13	220	233
Totals	...	...	...	105	627	732
1883.						
1st Quarter	...	...	...	46	120	166
2nd "	...	...	...	160	157	317
3rd "	...	...	...	481	198	679
4th "	...	...	...	403	163	566
Totals	...	...	...	1,090	638	1,728
1884.						
1st Quarter	...	...	...	359	41	400
2nd "	...	...	...	56	94	150
3rd "	...	...	...	12	124	136
4th "	...	...	...	10	101	111
Totals	...	...	...	437	360	797
1885.						
1st Quarter	...	...	...	66	59	125
2nd "	...	...	...	4	37	41
3rd "	...	...	...	9	50	59
4th "	...	...	...	2	58	60
Totals	...	...	...	81	204	285
1886.						
1st Quarter	...	...	...	1	66	67
2nd "	...	...	...	1	98	99
3rd "	...	...	...	0	114	114
4th "	...	...	...	0	150	150
Totals	...	...	...	2	428	430
1887.						
1st Quarter	...	...	...	0	100	100
2nd "	...	...	...	1	93	94
3rd "	...	...	...	0	142	142
4th "	...	...	...	9	103	112
Totals	...	...	...	10	438	448

DATE.				Smallpox.				Total Cases.	City Hospital, Cases admitted each year (continued).
1888.									
1st Quarter	...	...	...	13	...	69	...	82	
2nd "	...	...	...	4	...	86	...	90	
3rd "	...	...	...	1	...	174	...	175	
4th "	...	...	...	0	...	199	...	199	
Totals	...	...	...	18		528	...	546	
1889.									
1st Quarter	...	...	...	0	...	188	...	188	
2nd "	...	...	...	0	...	274	..	274	
3rd "	...	...	...	0	...	538	...	538	
4th "	...	...	...	0	...	801	...	801	
Totals	...	...	...	0		1801		1801	
1890.									
1st Quarter	...	...	...	0	...	488	...	488	
2nd "	...	...	...	0	...	642	...	642	
3rd "	...	...	...	0	...	719	...	719	
4th "	...	...	...	0	...	676	...	676	
Totals	...	...	...	0		2525		2525	

DISINFECTING STATION.

From the Table below it will be seen that a very large number of articles have been purified at this establishment, more, indeed, than in any year since 1883.

ARTICLES DISINFECTED.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Beds ...	2,165	855	259	481	517	536	1,176	1,441
Mattresses ...	1,109	592	197	390	311	419	207	349
Sheets ...	1,024	1,033	279	409	396	259	898	1,278
Blankets ...	1,833	1,749	376	442	359	357	1,122	1,834
Counterpanes ...	893	593	236	351	308	361	958	1,156
Pillows & Bolsters	3,397	2,325	603	1,017	888	1,164	2,278	3,222
Other Articles ...	24,446	5,502	2,444	2,736	2,156	4,506	4,149	13,539
Totals ...	34,867	12,649	4,394	5,826	4,935	7,652	10,788	22,819

The cost of the Station is estimated to have been as under:—

	£	s.	d.
Wages ...	65	0	0
Horse-keep, Shoeing, &c. ...	80	0	0
Gas for Heating and Lighting ...	8	16	9
Coal ...	20	0	0
Water ...	2	0	0

Total ... £175 16 9

Cost of
Disinfecting
Station.

MORTUARIES.

Mortuaries.

I am indebted to the Chief Constable for the figures relating to Mortuaries given below. It will be seen that these establishments have not been so largely used during 1890 as in most recent years.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Moor Street ...	13	30	76	58	66	106	124	56	103	61
Ladywood Rd.	17	17	10	23	9	12	3	11	7	6
Kenyon Street	25	22	46	42	44	55	55	35	33	31
Duke Street ...	9	17	10	18	38	28	41	17	20	31
Moseley Street	8	25	26	35	37	39	43	19	11	22
Totals ...	72	111	168	176	194	240	266	138	174	151

WATER SUPPLY.

Water Supply.

The chemical and physical quality of the supply has been maintained during the year, as will be seen by reference to Table XI., the quantities of the important ingredients having differed little in the average from the means of the past four years.

MISCELLANEOUS ANALYSES.

Miscellaneous Analyses.

During the year I have examined for various departments of the Corporation, the following articles :—

Sewage ...	50
Water ...	22
Blue Cloth ..	13
Mortar ...	11
Soot ...	9
Pan Contents ...	8
Poudrette ...	4
Oil of Turpentine ...	2
Plaster ...	1
Refuse Liquid from Metal Washing	1
TOTAL ...	121

PUBLIC BATHS.

Public Baths

The total number of bathers at the Corporation Baths during the year was 346,752. This is about the average of the last few years, but is much below the numbers for 1883 and 1884, particularly the latter year.

RETURN OF THE NUMBER OF BATHERS AT EACH OF THE CORPORATION BATHS DURING THE LAST
TEN YEARS.

Year.	KENT STREET.			WOODCOCK STREET.			NORTHWOOD STREET.			MONUMENT ROAD.			SMALL HEATH.			TOTAL.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Grand Total.
1881	115260	8768	124028	64014	1762	65776	106550	2704	109254	—	—	—	—	—	—	285824	13234	299058
1882	112141	8509	120650	68272	2015	70287	113036	4049	117085	—	—	—	—	—	—	293449	14573	308022
1883	101503	8025	109528	72852	2025	74877	96115	3093	99208	88073	5245	93318	8258	282	8540	366801	18670	385471
1884	115608	8812	124420	80279	2079	82358	103421	3506	106927	101173	6917	108090	23009	741	23750	423490	22055	445545
1885	90228	8749	98977	66111	1468	67579	77687	3039	80726	77791	6016	83807	17008	247	17255	328825	19519	348344
1886	83176	9009	92185	68720	1394	70114	78429	2459	80888	76750	5677	82427	13228	173	13401	320303	18712	339015
1887	87743	8588	96331	63143	1355	64498	78136	2714	80850	83963	6032	89995	24817	141	24958	337802	18830	356632
1888	86848	7848	94696	50513	1100	51613	68066	2051	70117	71911	5646	77557	6835	24	6859	284173	16669	300842
1889	99615	8873	108488	62573	1157	63730	75437	2501	77938	78974	6075	85049	11978	70	12048	328577	18676	347253
1890	98730	8477	107207	61552	1234	62786	80277	2522	82799	79047	6560	85607	8330	23	8353	327936	18816	346752

SEWERAGE WORKS.

Sewerage
Works.

From the Report of the City Surveyor it appears that at the end of the year the City Council had charge of $206\frac{1}{2}$ miles of Sewers, against $202\frac{3}{4}$ miles at the close of 1889.

STREETS AND ROADS.

Streets and
Roads.

Of the 205 miles of Streets and Roads in the City, $199\frac{1}{2}$ have been taken over by the City Council and declared highways. The remaining $5\frac{1}{2}$ miles consist of $2\frac{1}{2}$ miles of private roads and passages, and 3 miles of road not yet declared highways.

NIGHTSOIL AND REFUSE DISPOSAL.

Nightsoil and
Refuse disposal.

The loads of Nightsoil removed during the year from ashpit-privies numbered 43,835. The contents of the pans were removed in 1,910,577 instances. The loads of dry ashes collected numbered 73,007.

SANITARY WORK.

Sanitary Work.

In Table V., on page 64, will be found a return made by Mr. Parker, Inspector of Nuisances, of the sanitary defects remedied during the year. In all 21,342 nuisances have been abated. The work done includes the provision of new drains, the maintenance in efficient condition of drains already provided, and the prevention of any escape of sewer gases in or about dwellings. The removal of filth conditions by cleansing houses, removing accumulations of offensive matter, and preventing the keeping of animals in unfit situations has also had a large share of attention. Bad ventilation and over-crowding, houses requiring repairs, or in such a state as to be unfit for habitation, foul privies needing reconstruction, and houses requiring to be purified after scarlet fever and other infectious diseases, have also been dealt with.

Fifty-seven owners were summoned for not abating nuisances on their properties; 56 of them were convicted, the costs amounting to nearly £12.

I remain,

Mr. Chairman and Gentlemen,

Your obedient Servant,

ALFRED HILL, M.D.,

Medical Officer of Health.

III. APPENDIX.

(TABLES, MAP, AND CHART.)

TABLE I.
BIRTHS AND DEATHS (GROSS NUMBERS).

DATE.	BIRTHS.	DEATHS.
1890	14,076	9,561
1889	14,001	8,352
1888	13,673	7,835
1887	13,893	8,536
1886	14,282	8,499
1885	14,383	8,156
1884	14,991	9,043
1883	14,701	8,714
1882	14,866	8,425
1881	14,869	7,938
1880	15,111	8,088
Average of Ten years } 1880-1889 ... }	14,477	8,359

NOTES.

- 1.—Population at Census 1881, 400,774.
- 2.—Population estimated to the middle of the Year 1890, 461,865.
- 3.—Area in Acres, 8,400.
- 4.—Number of Inhabited Houses in City at Census 1881, 78,301.
- 5.—Average number of Persons in each House at Census 1881, 5·1.

TABLE II.
ANNUAL RATE OF MORTALITY, DEATH-RATE AMONG CHILDREN, AND DEATHS IN PUBLIC INSTITUTIONS.

DATE.	Annual rate of Mortality per 1,000 Living.	Deaths of Children under 1 year ; percentage to total Deaths.	Percentage of Deaths of Children under 1 year to Registered Births.	Deaths of Children under 5 years ; percentage to total Deaths.	Percentage of Deaths in Public Institutions to total Deaths.
1890	20·3	27·1	18·4	43·7	16·5
1889	18·4	28·7	17·1	45·4	15·7
1888	17·5	26·9	15·4	43·4	15·0
1887	19·4	28·9	17·8	44·8	14·5
1886	19·6	29·6	17·6	46·5	14·5
1885	19·1	27·6	15·7	41·8	15·7
1884	21·1	28·9	17·4	47·7	13·8
1883	21·0	26·8	15·9	43·8	15·7
1882	20·6	29·1	16·5	47·2	15·4
1881	19·7	27·7	15·0	47·1	15·3
1880	20·5	32·1	17·2	49·9	12·4
Average of 10 years 1880-1889 }	19·7	28·6	16·6	45·8	14·8

TABLE III.

Mortality from certain classes of Diseases, and proportion to population and to 1,000 deaths in 1890.

CLASS OF DISEASES.	Total Deaths.	Death Rate per 1,000 of the population.	Proportion of Deaths to 1,000 Deaths.
1—Seven principal Zymotic Diseases	1,297	2·8	136
2—Pulmonary (other than Phthisis)	2,136	4·6	223
3—Tubercular 	1,089	2·4	114
4—Wasting Diseases of Infants ...	793	1·7	83
5—Convulsive Diseases of Infants...	225	0·5	24

1.—Includes Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrhœa.

3.—Includes Phthisis, Scrofula, Rickets, Tabes, and Tubercular Meningitis.

4.—Includes Marasmus, Atrophy, Debility, Inanition, and Premature Birth in Infants under one year.

5.—Includes Meningitis, Convulsions, and Teething in Infants under one year.

TABLE IV.

SHOWING THE NUMBER OF DEATHS IN THE TEN YEARS, 1880 TO 1889, FROM THE SEVEN PRINCIPAL ZYMOTIC DISEASES, AND THE NUMBER IN 1890.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	Annual Average of 10 years, 1880-1889.	Proportion of deaths to 1,000 years, 1880-1889.	1890.	Proportion of deaths to 1,000 years, 1880-1889.
Smallpox ...	2	6	17	110	64	12	0	2	0	0	21	2.5	0	0.0
Measles ...	63	132	150	155	333	119	383	237	191	197	196	23.5	329	34.4
Scarlet Fever ...	123	164	256	326	134	31	39	34	40	156	130	15.6	209	21.9
Diphtheria ...	51	57	49	46	40	46	73	56	40	50	51	6.1	61	6.4
Whooping Cough ...	217	362	319	176	289	253	94	379	235	279	260	31.1	203	21.2
Fever ...	84	66	87	81	84	77	65	78	64	44	73	8.7	61	6.4
Diarrhœa ...	784	341	535	412	737	338	729	550	305	465	520	62.2	434	45.4
Total ...	1,324	1,128	1,413	1,306	1,681	876	1,383	1,336	875	1,191	1,251	149.7	1,297	135.7
London ...	13,661	13,811	13,553	10,801	13,629	11,262	11,102	12,684	10,803	9,709	12,101	134.9	12,279	134.6

TABLE V.

SUMMARY OF WORK DONE BY THE OFFICERS AND MEN EMPLOYED DURING
THE YEAR ENDED DECEMBER 31ST, 1890.

(RETURN MADE BY MR. PARKER, *Inspector of Nuisances.*)

	Nuisances Abated.
Defective Drains requiring opening and clearing from obstruction	5,250
„ Spout Drains	572
„ Drains not efficiently trapped	1,353
„ Sink Drains requiring disconnection from the Sewer	263
Nuisances arising from the want of drains	175
„ „ „ the want of an efficient supply of whole- some water	4
„ „ „ the keeping of fowls...	360
„ „ „ an accumulation of water in cellars	159
„ „ „ the filthy condition of privies	143
„ „ „ foul and defective urinals	606
„ „ „ the overcrowding of houses	24
„ „ „ the want of efficient ventilation	40
Swine and Swine Styres so kept as to be a nuisance	175
Houses reported unfit for human habitation	93
Houses disinfected, cleansed, and purified, where Zymotic disease has occurred	2,384
Filthy and unwholesome Houses requiring cleansing and white- washing	1,067
Defective Houses requiring repairs	740
Accumulations of wash, deposits of offensive matter, manure, &c.	967
Foul Ashpits and Privies requiring repairs	1,918
Houses where the Privies and Ashpits belonging thereto are so foul and defective as to require re-constructing to Water Closets	2,889
Back Yards requiring paving	778
Number of Dangerous Premises reported to the City Surveyor's Department	559
„ Defective Water Taps and Standpipes reported to the Water Department	581
Soil pipes of Water Closets requiring disconnecting from the interior of dwelling houses	71
Drains in Cellars requiring disconnection	171
Total	21,342

Number of Notices issued for the abatement of Nuisances during the year ending December 31st, 1890	22,727
Number of Cases Summoned	57
„ „ Convicted	56
Amount of Costs	£11 19 6

COW SHEDS.

No. of Visits to Cow Sheds	...	...	...	...	...	...	1,599
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MILKSHOPS.

No. of Milkshops Registered during the Year	...	...	...	...	91
No. of Visits to Milk Shops and Dairies	...	...	...	...	3,382

BAKEHOUSES.

No. of Visits to Bakehouses	...	...	...	...	...	1,172
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SMOKE NUISANCES.

No. of Observations made by the Inspectors	...	...	...	4,392
„ Manufacturers Reported for the emission of dense smoke...				202
„ „ Cautioned	...	...	...	118
„ „ Summoned	...	...	...	93
„ „ Convicted	...	...	...	91
Amount of Penalties	..	...	...	£73 0 0
„ Costs	...	...	...	£30 8 6

COMMON LODGING HOUSES.

No. of Registered Common Lodging Houses	...	...	...	87
„ Lodgers Allowed	...	...	...	1,959
„ Visits by day	...	...	...	12,030
„ Visits by night	...	...	...	1,225
„ Lodgers found occupying the Houses	...	...	...	18,005
„ Houses Registered under the Public Health Act, 1875	...	...	...	128
„ Lodgers allowed	...	...	...	725
„ Persons Summoned	...	...	...	3

THE CANAL BOATS ACT, 1877, AND 1884.

No. of Canal Boats inspected during the Year	...	...	...	774
„ Canal Boats Registered during the Year	...	...	...	50
„ Persons Summoned	...	...	...	0

SLAUGHTER HOUSES.

(Return made by MR. BIRCKLEY, Superintendent of the Markets.)

No. of Visits	...	...	...	...	...	8,222
Voluntary Surrenders of Meat	...	...	...	...	...	464
Seizures of Bad Meat	...	...	...	...	...	23
Weight Destroyed	...	...	...	...	...	106,956 lbs.
Voluntary Surrenders of Fish, &c.	...	...	...	...	...	152
Seizures of Fish, &c.	...	...	...	...	...	57

CONTAGIOUS DISEASES (ANIMALS) ACT.

(Return made by MR. BIRCKLEY, Superintendent of the Markets.)

No. of Visits to Railway Stations	...	...	...	...	1,927
No. of Visits to Cow Houses	...	...	...	...	260

TABLE VI.

METEOROLOGICAL CONDITION OF THE AIR, AND AMOUNT OF RAINFALL.
FOR THE YEAR ENDING DECEMBER 31ST. 1890.

Observed at 9-0 a.m. at Oakwood. Accock's Green, by myself and my son, Mr. H.
GROSVENOR HILL.

The Instruments are about 430 feet above the mean level of the sea.

1890. Months.	Pressure of Air.	TEMPERATURE.						Degree of Humidity. Complete Saturation = 100	RAINFALL. Gauge 1 foot diameter. Receiving Surface 1 foot above the ground.	
	Barometer	Of the Air.			Of the Ground.				Depth of Rain depo- sited upon a square foot of surface, in inches and parts.	Number of Days on which Rain fell, when 5 100ths of an inch or more was measured.
	Mean Monthly Reading (corrected and reduced to 32 degrees Fahrenheit)	Highest in Shade.	Lowest in Shade.	Mean Tempe- rature in the Month.	1 foot deep.	4 feet deep.				
	In Parts.	Dg. Pts.	Dg. Pts.	Dg. Pts.	Dg. Pts.	Dg. Pts.		In Parts.		
January ..	29.402	54.0	19.0	40.7	40.6	42.4	92	3.07	19	
February ...	29.755	50.0	25.5	36.9	38.8	41.1	95	0.70	3	
March ...	29.390	60.0	18.0	43.3	41.0	41.4	85	1.74	13	
April ...	29.381	62.0	26.0	44.8	44.3	44.1	77	1.11	12	
May ...	29.394	75.5	36.0	53.9	52.2	48.3	69	2.54	10	
June ..	29.566	73.0	35.5	57.8	56.3	52.6	74	1.59	10	
July ...	29.433	73.5	43.0	59.5	57.9	54.7	73	2.00	10	
August ...	29.413	79.0	39.0	58.8	58.0	56.1	77	3.11	16	
September ...	29.693	78.5	37.5	59.6	56.1	54.6	83	0.91	5	
October ...	29.643	68.0	24.5	49.4	49.9	52.0	87	1.53	9	
November ...	29.442	60.5	24.0	42.5	44.7	47.6	93	3.49	15	
December ...	29.604	42.0	9.0	29.2	36.5	42.1	99	0.65	5	

PRICES OF COAL, FLOUR, POTATOES, AND BUTCHERS' MEAT.
AND THE NUMBER OF PAUPERS RELIEVED IN THE PARISH OF BIRMINGHAM
DURING EACH OF THE FIVE YEARS ENDED MICHAELMAS, 1886-1890.

Years.	Average Prices of Food and Fuel.				PAUPERISM. Weekly Average of Paupers relieved during the Year.	
	Coal per ton.	Flour per 224lbs.	Potatoes per ton.	Butchers' Meat per lb.	In-door.	Out-door.
1890	9/8	20/-	60/-	Beef -/4 $\frac{3}{4}$ Mut'n -/8	2,680	1,138
1889	9/3	20/-	70/-	Beef -/5 Mut'n -/8	2,876	1,591
1888	9/-	20/-	70/-	Beef -/4 $\frac{1}{2}$ Mut'n -/6 $\frac{1}{2}$	2,792	2,370
1887	8/2	22/-	82/-	Beef -/4 Mut'n -/6 $\frac{3}{4}$	2,778	2,863
1886	8/9 $\frac{3}{4}$	19/-	64/-	Beef -/4 $\frac{1}{2}$ Mut'n -/7	2,552	3,374

RAINFALL AND TEMPERATURE IN EACH MONTH AND YEAR FROM 1880 TO 1890.

MONTH.	1880.			1881.			1882.			1883.			1884.			1885.			1886.			1887.			1888.			1889.			Average for 10 yrs. 1880—1889.			1890.		
	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.	Temperature.	Rainfall.	No. of days on which 5-100ths of an inch or more was measured.				
January	0.69	3	33.7	0.96	4	28.5	2.41	7	40.5	4.21	14	40.3	3.04	13	43.2	1.98	9	35.9	1.95	12	35.2	2.43	11	34.1	0.90	7	37.0	0.80	3	36.4	1.94	8	36.5	3.07	19	40.7
February	3.12	16	41.0	3.43	13	36.3	2.15	5	41.9	3.53	13	42.4	1.66	11	40.8	3.40	9	42.2	1.21	4	33.2	0.85	4	38.3	0.91	8	35.1	2.17	12	37.1	2.24	10	38.8	0.70	3	36.9
March	0.53	3	41.7	2.37	11	41.1	2.57	6	45.6	1.44	9	35.1	2.74	7	43.1	1.02	7	40.2	3.26	13	38.7	1.99	8	37.9	2.96	15	37.6	3.32	8	40.0	2.22	9	40.1	1.74	13	43.3
April	2.35	7	46.0	0.78	3	44.3	4.18	17	47.0	0.98	6	47.1	1.62	9	44.2	2.99	11	45.8	2.20	9	45.7	1.33	8	43.7	1.75	10	43.1	3.41	18	44.3	2.16	10	45.1	1.11	12	44.8
May	1.62	6	50.6	1.48	7	53.9	3.19	11	52.9	1.38	9	51.5	1.06	7	52.8	2.60	14	48.3	6.31	17	51.3	1.96	10	48.6	1.03	4	52.5	3.92	13	55.2	2.46	10	51.8	2.54	10	53.9
June	2.55	17	56.2	1.74	15	57.9	4.00	15	55.7	3.63	9	57.0	2.29	5	57.4	3.97	9	58.5	1.99	7	56.6	2.45	4	61.3	2.31	10	56.0	0.65	5	61.0	2.56	10	57.8	1.59	10	57.8
July	4.80	20	59.8	1.66	9	62.5	3.83	14	60.0	3.95	11	58.4	2.67	15	61.7	0.51	3	62.3	3.49	15	62.0	1.28	5	65.4	5.58	22	56.9	2.15	9	60.6	2.99	12	61.0	2.00	10	59.5
August	0.80	4	60.9	5.18	16	57.4	2.48	12	59.2	0.64	5	60.5	1.74	4	64.1	3.31	11	56.9	2.17	9	61.1	1.91	8	61.3	2.63	11	58.8	2.94	14	59.1	2.38	9	59.9	3.11	16	58.8
September	4.63	10	58.7	1.65	9	54.4	3.03	9	53.7	5.89	15	55.9	1.19	6	58.5	1.94	10	54.5	3.38	9	57.1	2.45	13	53.5	1.84	5	54.1	2.52	8	55.6	2.85	9	55.6	0.91	5	59.6
October	6.38	11	41.0	3.17	11	45.2	6.61	15	48.9	2.64	12	49.2	1.44	7	48.7	4.61	14	44.9	3.97	16	51.7	2.35	8	44.5	0.46	3	46.3	3.11	18	46.5	3.47	11	47.0	1.53	9	49.4
November	2.30	9	40.1	3.13	16	47.3	4.56	18	42.0	4.47	15	41.9	1.61	8	41.8	3.46	14	41.1	2.08	10	43.6	2.49	15	39.6	4.95	15	45.8	1.27	8	43.7	3.03	13	42.7	3.49	15	42.5
December	3.48	13	41.7	3.40	9	37.9	4.59	18	37.8	1.02	5	40.4	2.48	12	39.5	0.65	4	37.9	4.58	16	35.0	1.78	13	36.9	2.31	9	39.8	2.29	12	37.2	2.66	11	38.4	0.65	5	29.2
Year	33.25	119	47.9	28.95	123	47.2	43.60	147	48.8	33.78	123	48.3	23.54	104	49.6	30.44	115	47.4	36.59	137	47.6	23.27	107	47.1	27.63	119	46.9	28.55	128	48.0	30.96	122	47.9	22.44	127	48.0

TABLE VIII.

NEW CASES OF DISEASE COMING UNDER TREATMENT DURING THE YEAR 1890,
AT THE FOLLOWING INSTITUTIONS.

DISEASES.	I. General Hospital.	II. General Dispensary.	III. Queen's Hospital.	IV. Children's Hospital.	V. The Work- house.	VI. Out-door Pauper Patients.	VII. City Hosptl.	TOTAL.
Smallpox	...	...	...	...	...	...	...	...
Measles	2	70	2	53	50	164	...	341
Scarlet Fever.....	2	16	9	35	2	42	2,525	2,631
Diphtheria	8	8	3	35	1	3	...	58
Whooping Cough ...	10	300	9	788	18	54	...	1,179
Croup	6	...	9	55	2	2	...	74
Diarrhœa	2,243	205	1,249	1,166	45	180	...	5,088
Dysentery	...	...	1	...	1	...	...	2
Asiatic Cholera	...	...	...	...	...	...	...	...
Erysipelas	5	37	88	6	5	19	...	160
Continued Fever ...	...	...	...	1	...	...	...	1
Typhus	...	...	...	...	...	...	...	...
Enteric or Typhd.	21	32	30	22	16	2	...	123
Relapsing	...	...	...	...	...	...	...	...
Febricula	2	27	...	111	...	...	...	140
Ague	...	...	3	...	...	...	...	3
Rheumatic Fever ...	14	435	48	146	26	33	...	702
Puerperal Fever ...	...	2	...	...	...	...	...	2
Bronchitis & Catarrh	620	5,110	1,252	1,854	707	1,820	...	11,363
Influenza	164	119	22	43	243	122	...	713
Pleurisy & Pneumonia	279	401	201	174	199	54	...	1,308
Phthisis	188	1,626	280	66	409	384	...	2,953
Constl. Syphilis.....	97	106	166	158	74	39	...	640
All other diseases ...	33,976	16,966	13,813	9,296	3,056	4,419	...	81,526
Accidents	15,993	245	11,501	164	182	49	...	28,134
Totals.....	53,630	25,705	28,636	14,173	5,036	7,386	2,525	137,141

The above returns are made by (I.)—J. R. Ratcliffe, Esq., M.B.; (II.)—F. W. Emery, Esq., M.D.; A. F. Messiter, Esq., L.R.C.P.; E. Dormer Kirby, Esq., M.D.; and William Richards, Esq., M.B.; (III.)—L. W. Powell, Esq., M.R.C.S.; (IV.)—W. L. French, Esq., L.R.C.P.I.; (V.)—C. W. Suckling, Esq., M.D. and Jordan Lloyd, Esq., F.R.C.S.; (VI.)—Walter Bowen, Esq., Clerk to the Guardians; (VII.)—N. S. Manning, Esq., F.R.C.S.I., Medical Superintendent.

TABLE IX.

NUMBER OF CASES REPORTED UNDER THE INFECTIOUS DISEASE
(NOTIFICATION) ACT, 1889, DURING EACH WEEK OF THE YEAR 1890.

Number.	Week.		Smallpox.	Cholera.	Diphtheria.	Membranous Croup.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Typhoid Fever.	Relapsing Fever.	Simple Con- tinued Fever.	Puerperal Fever.	Total.
	Date of ending.													
	1890.													
1	January	4th	...	...	...	...	...	...	...	...	...	...	...	...
2	"	11th	...	...	...	...	...	...	...	...	...	...	...	...
3	"	18th	...	...	...	...	...	...	...	...	...	...	...	...
4	"	25th	...	...	6	4	9	57	...	12	...	1	...	89
5	February	1st	...	...	...	1	9	57	...	8	...	...	...	75
6	"	8th	...	...	5	1	9	48	...	12	...	...	...	75
7	"	15th	...	...	3	2	5	43	...	1	...	...	1	55
8	"	22nd	...	...	2	2	4	50	...	...	...	...	1	59
9	March	1st	...	...	4	4	5	49	...	9	...	...	...	71
10	"	8th	...	...	4	1	5	48	...	3	...	...	1	62
11	"	15th	...	...	5	4	3	42	...	3	...	...	...	57
12	"	22nd	...	...	5	2	3	41	...	5	...	...	...	56
13	"	29th	...	...	2	1	2	39	...	2	...	...	1	47
14	April	5th	...	...	5	...	3	44	...	3	...	...	...	55
15	"	12th	...	...	1	1	4	44	...	2	...	...	...	52
16	"	19th	...	...	3	2	5	52	...	3	...	...	...	65
17	"	26th	...	...	9	3	7	53	...	5	...	...	...	77
18	May	3rd	...	...	7	...	3	55	...	5	...	...	...	70
19	"	10th	...	...	3	1	3	64	...	5	...	...	1	77
20	"	17th	...	...	6	...	8	65	...	4	...	...	...	83
21	"	24th	...	...	2	2	7	62	...	2	...	...	...	75
22	"	31st	...	...	3	...	3	85	...	2	...	...	...	93
23	June	7th	...	...	6	1	3	70	...	4	...	...	1	85
24	"	14th	...	...	9	1	3	63	...	2	...	...	...	78
25	"	21st	...	...	8	...	9	78	...	2	...	...	1	98
26	"	28th	...	...	4	1	15	89	...	4	...	...	...	113
27	July	5th	...	...	4	...	9	67	...	3	...	...	1	84
28	"	12th	...	...	2	3	8	75	...	2	...	...	...	90
29	"	19th	...	...	2	1	6	64	...	2	...	4	...	79
30	"	26th	...	...	5	1	6	74	...	5	...	...	...	91
31	August	2nd	...	...	2	...	8	70	...	1	...	1	1	83
32	"	9th	...	...	4	...	9	55	...	6	...	...	...	74
33	"	16th	...	...	3	2	6	43	...	2	...	...	1	57
34	"	23rd	...	...	2	...	5	49	...	7	...	...	...	63
35	"	30th	...	...	1	...	7	52	...	6	...	...	1	67
36	September	6th	...	...	4	...	21	61	...	8	...	...	...	94
37	"	13th	...	...	4	3	11	73	...	16	...	...	...	107
38	"	20th	...	...	10	2	6	68	1	1	...	...	...	88
39	"	27th	...	...	7	...	10	93	...	7	...	...	...	117
40	October	4th	...	...	6	...	17	66	...	15	...	...	...	104
41	"	11th	...	...	5	1	14	89	...	10	...	1	1	121
42	"	18th	...	...	11	1	11	91	...	7	...	1	...	122
43	"	25th	...	...	3	1	6	83	...	2	...	1	...	96
44	November	1st	...	...	4	...	7	58	...	7	...	...	...	76
45	"	8th	...	...	8	2	11	78	...	6	...	4	1	110
46	"	15th	...	...	6	...	22	66	...	14	...	...	...	108
47	"	22nd	...	...	5	1	14	79	...	7	...	...	...	106
48	"	29th	...	...	3	1	10	51	...	12	...	1	...	78
49	December	6th	...	...	...	2	5	46	...	11	...	...	...	64
50	"	13th	...	...	7	2	9	37	...	3	...	...	...	58
51	"	20th	...	...	5	1	11	51	...	4	...	...	...	72
52	"	27th	...	...	2	1	5	34	...	3	...	...	...	45
53	January	3rd	...	...	6	1	14	24	...	7	...	...	1	53
TOTALS			...	...	223	60	395	2995	1	272	...	14	14	3974

TABLE X.

RETURN FOR THE PERIOD 1ST JULY, 1889, TO 30TH JUNE, 1890, RESPECTING THE VACCINATION OF CHILDREN WHOSE BIRTHS WERE REGISTERED IN THE CITY DURING THE SAID PERIOD.

PARISH.	Number of Births returned in the "Birth List Sheets" as Registered.	Number of these Births duly entered in Columns 10, 11, and 13 of the "Vaccination Register" (Birth List Sheets), viz.:				Number of these Births which remained unentered in the "Vaccination Register" of on account (as shown by Report Book) of			Number of these Births remaining neither duly entered in the "Vaccination Register" (cols. 3, 4, 5, and 6 of this Return) nor temporarily accounted for in the "Report Book" (cols. 8, 9, and 10 of this Return).
		Col. 10.		Col. 11.		Col. 13.	Postponement by Medical Certificate.	Removal to Districts the Vaccination Officer of which has been duly appraised.	Removal to places unknown or which cannot be reached; and cases not having been found.
		"Successfully Vaccinated."	"Insusceptible of Vaccination."	"Had Smallpox."	"Dead, Unvaccinated."				
1	2	3	4	5	6	8	9	10	11
Birmingham ...	8,120	6,602	21	—	895	87	40	433	42
Aston (within the City)	5,507	4,336	20	—	579	109	35	254	174
Edgbaston (,,)	369	313	1	—	24	14	4	7	6

TABLE XI.—WATER: RESULTS OF ANALYSES

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity	Organic Carbon.	Organic Nitrogen.
1890.	CORPORATION SUPPLY.				
Jan. 6th	7 court, Allison Street	6·7	32·36	·210	·034
Feb. 3rd	11, Edmund Street	12·2	30·76	·142	·016
Mar. 4th	110, Bath Street	4·4	28·66	·187	·023
April 8th	14 court, Rea Street	8·9	28·92	·199	·024
May 5th	74 and 75, Navigation Street	11·1	25·06	·123	·027
June 4th	7 court, Osler Street	13·9	25·82	·120	·010
July 8th	Corporation Wharf, Lancaster St.	15·0	23·92	·184	·036
Aug 11th	64, Nelson Street	17·2	26·96	·127	·024
Sept. 2nd	98, Aberdeen Street	14·4	27·92	·116	·014
Oct. 1st	98, Pershore Street	15·0	26·42	·213	·029
Nov. 4th	2 court, Staniforth Street	10·0	27·54	·148	·013
Dec. 8th	63, James Turner Street	8·0	28·72	·200	·034
	Average results, 1890	11·4	28·00	·164	·024
	„ „ 1889	11·1	29·38	·188	·034
	„ „ 1888	10·2	26·72	·155	·023
	„ „ 1887	10·7	27·93	·158	·027
	„ „ 1886	11·0	27·38	·177	·037

EXPRESSED IN PARTS PER 100,000.

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen	Previous Sewage or Animal Contami- nation. (Estimated.)	Chlorine.	Hardness.			REMARKS
					Tempo- rary.	Perma- nent.	Total.	
·001	·165	·200	1,340	1·6	7°·3	10°·7	18°·0	Slightly turbid, yellowish green.
·001	·352	·369	3,210	1·9	5°·9	9°·4	15°·3	Clear; bluish green.
·001	·176	·200	1,450	1·6	9°·2	7°·7	16°·9	Slightly turbid, greenish yellow.
·002	·132	·157	1,010	1·5	10°·8	6°·7	17°·5	Slightly turbid, greenish yellow.
·002	·380	·408	3,490	1·9	3°·0	9°·0	12°·0	Very slightly turbid; greenish blue.
·001	·238	·249	2,070	1·6	4°·4	8°·3	12°·7	Clear; greenish blue.
·001	·264	·301	2,330	1·8	5°·2	8°·4	13°·6	Clear; greenish.
·001	·246	·271	2,150	2·0	5°·2	8°·0	13°·2	Clear; greenish blue.
·001	·220	·235	1,890	2·0	8°·9	9°·1	18°·0	Clear; greenish blue.
·001	·066	·096	350	1·7	5°·4	13°·6	19°·0	Clear; greenish yellow.
·001	·286	·300	2,550	2·1	5°·6	13°·2	18°·8	Clear; greenish blue.
none	·286	·320	2,540	2·1	8°·3	14°·0	22°·3	Clear; greenish blue.
·001	·234	·259	2,030	1·8	6°·6	9°·8	16°·4	
·001	·219	·253	1,880	1·7	5°·7	9°·6	15°·3	
·001	·229	·253	1,980	1·6	5°·5	9°·9	15°·4	
·001	·272	·300	2,410	1·7	8°·5	12°·4	20°·9	
·001	·228	·266	1,970	1·6	7°·3	9°·8	17°·1	

Table of the Number of Deaths occurring in each Street in the City of
Birmingham during the Year 1890.

STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
A			Barr Street West ...			Butler Street ...	1	4
			Bartholomew Row ...	2		Butler Street South ...	1	1
			Bartholomew Street ...	4	16	Butlin Street ...		2
			Barwell Road ...		5	C		
			Barwick Street ...			Calthorpe Road ...		2
		1	Baskerville Passage ...			Cambridge Crescent ...		
	1	3	Baskerville Place ...		2	Cambridge Street ...		4
	4	15	Bath Passage ...		13	Camden Drive ...		4
		1	Bath Row ...		12	Camden Grove ...		
	6	24	Bath Street ...	1	12	Camden Street ...	9	36
	2	12	Beach Street ...	1	12	Camp Hill ...	3	11
		1	Beak Street ...	2	8	Camp Street ...		5
		4	Beaufort Road ...		1	Canal Street ...		
			Bedford Road ...		3	Cannon Street ...		1
		1	Beechfield Road ...	1	4	Cape Lane ...		
		5	Belgrave Road ...	1	13	Cape Street ...		5
		18	Bell Barn Road ...	10	32	Cardigan Street ...		16
			Bellis Street ...		7	Carlisle Street ...	1	4
	3	7	Bell Street ...		6	Carlton Road ...	1	3
	3	3	Belmont Passage ...	1	5	Carlylo Road ...	1	
	5	10	Belmont Row ...		24	Carnarvon Road ...		
		2	Bemere Street ...	4	2	Caroline Street ...		2
		9	Bennett's Hill ...		1	Carpenter Road ...		1
			Berkley Street ...	1	3	Carrington Road ...	3	5
		16	Berners Street ...	2		Carr's Lane ...		
		2	Bertram Road ...			Cartland Road ...		2
	1	3	Betholom Row ...		12	Carver Street ...	1	15
		4	Birchall Street ...		8	Castle Street ...		1
			Birchfield Road ...		28	Cathcart Street ...		6
		10	Bishopsgate Street ...	8	10	Cato Street ...	4	13
		2	Bishop Street ...	1	17	Cato Street North ...	1	5
			Bishop Street South ...		10	Cattell Road ...	2	20
	2	19	Bissell Street ...	3	8	Cattell Grove ...		2
		1	Blake Lane ...		2	Cavendish Road ...		2
		2	Blews Street ...	2	10	Cecil Street ...	5	19
		8	Blews Street West ...		4	Chad Road ...		4
			Bloomsbury ...		22	Chandos Road ...		
	1	2	Bloomsbury Street ...	4	1	Chapel House Street ...		1
		1	Blucher Street ...	1	4	Chapel Street ...		5
	13	37	Blythe Street ...	4	15	Chapman Road ...		
			Bolton Road ...	5	37	Charles Road ...		
		4	Bolton Street ...	2	2	Charles Arthur Street ...	3	12
B		15	Bond Street ...		7	Charles Henry Street ...	5	30
			Bordesley Green ...	7	16	Charles Road ...	2	1
		1	Bordesley Green Road ...	3		Charlotte Road ...		1
		6	Bordesley Park Road ...	7	22	Charlotte Street ...		3
		9	Bordesley Street ...	10	37	Chattaway Street ...		7
		8	Bow Street ...	1	9	Cheapside ...	16	42
			Bowyer Street ...		2	Cheatham Street ...		3
		7	Bracebridge Street ...		15	Chequers Walk ...		4
		4	Bradford Street ...	2	19	Cherry Street ...		
		3	Braithwaite Road ...		1	Cherry Wood Road ...	2	9
		2	Branston Street ...	1	6	Chester Street ...	1	6
		5	Brasshouse Passage ...		1	Cheston Road ...		3
	1		Brass Street ...	2	3	Christ Church Passage ...		
			Bread Street ...	1	4	Church Road ...		5
			Brearley Street ...	17	45	Church Road, Edgbaston ...		1
			Brewery Street ...		3	Church Street ...	1	3
			Brickkiln Street ...		1	Claremont Road ...	1	3
			Bridge Street ...	1	1	Clarendon Road ...		1
			Bridge Street West ...	3	28	Clark Street ...	3	16
			Bristol Road ...	1	13	Claverton Street ...	1	7
			Bristol Street ...	3	10	Claybrook Street ...		1
Bacchus Road ...	2	6	Broad Street ...	2	9	Clement Street ...		3
Bagot Street ...	2	22	Bromsgrove Street ...		20	Cleve Terrace ...		3
Bailey Street ...		1	Brookfield Road ...	2	4	Clissold Street ...	2	5
Baker Street ...		6	Brook Road ...			Cleveland Street ...	1	2
Balsall Heath Road ...		9	Brook Street ...			Olive Passage ...		
Banbury Street ...		5	Broom Street ...	1	8	Clyde Street ...		5
Barford Road ...		6	Brueton Street ...			Coleman Street ...	6	13
Barford Street ...	2	31	Buckingham Street ...	1	12	Coleshill Street ...	1	16
Barford Street South ...		2	Buck Street ...	1	7	College Street ...	1	8
Barker Street ...		5	Bullock Street ...	1	3	Colmore Row ...		
Barlow's Road ...			Bull Ring ...		1	Commercial Street ...		1
Barn Street ...	1	18	Bull Street ...		2	Communication Row ...	2	3
Barrack Street ...	1	1	Barbury Street ...	3	9			
Barr Street ...	5	26	Burlington Passage ...					

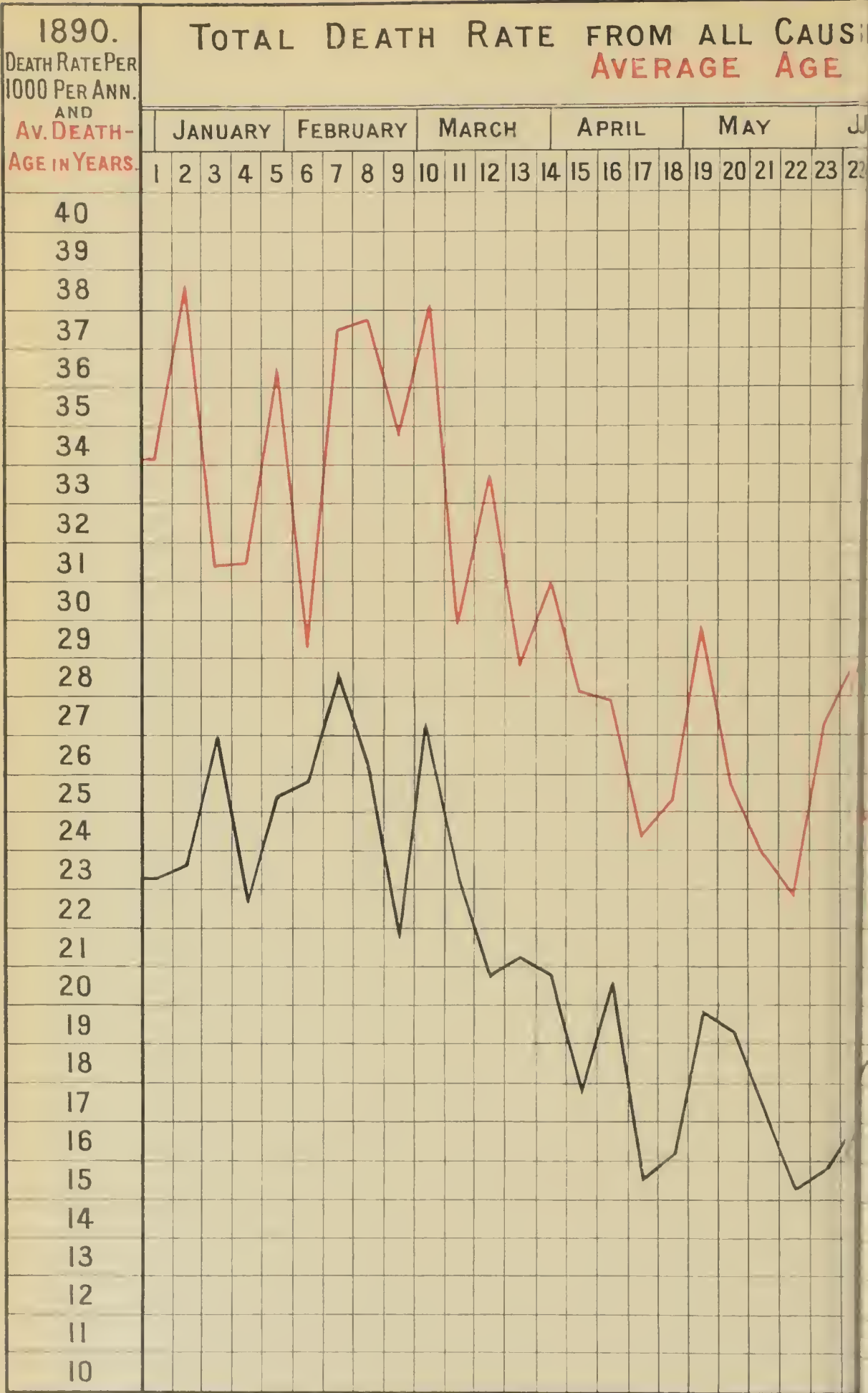
STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
Congreve Street ...		1	Emily Street ...	4	14	Grant Street ...	1	9
Constance Road ...			Emmeline Street ...	1	2	Granville Street ...	2	13
Constitution Hill ...	1	11	Eufield Road ...			Great Barr Street ...	6	19
Conybere Street ...	2	15	Engine Street ...			Great Brook Street ...	3	23
Cook Street ...	1	6	Erasmus Road ...		3	Great Charles Street ...	1	5
Cooksey Road ...	5	30	Ernest Street ...			Great Colmore Street ...	5	27
Cope Street ...	2	9	Erskine Street ...		8	Great Francis Street ...	7	46
Coplow Street ...		7	Essex Street ...		8	Great Hampton Row ...	2	26
Coralie Street ...		3	Essington Street ...	1	17	Great Hamptou Street ...	1	7
Cornwall Street ...			Ethel Street ...			Great King Street ...	7	27
Corporation Street ...		4	Eversley Road ...	1	6	Great Lister Street ...	3	40
Coventry Road ...	6	49	Exeter Row ...		1	Great Russell Street ...	5	40
Coventry Street ...	1	12	Eyre Street ...	1	5	Great Tindal Street ...		10
Cowper Street ...	2	15				Green Lane ...	2	24
Cox Street ...		12				Green Street ...	1	3
Coxwell Road ...		2	F			Greenfield Crescent ...		1
Crabtree Road ...	2	11	Factory Road ...	1	1	Greou's Court ...		
Cranemore Street ...		3	Faleoner Road ...		1	Green's Village ...		4
Cregoe Street ...	2	24	Farm Road ...			Greenway Street ...	6	19
Creseent ...		35	Farm Street ...	11	42	Grosvenor Row ...		1
Creseent Wharf ...	2	7	Farquhar Road ...			Grosvenor Street ...		
Crompton Road ...	12	38	Fazeley Street ...	1	6	Grosvenor Street West ...	3	23
Cromwell Street ...			Fisher Street ...	1	12	Grove Street ...		
Crooked Lane ...			Fleet Street ...		7	Gnest Street ...	1	5
Cuekoo Road ...	2	12	Floodgate Street ...	1	20	Guildford Street ...	4	9
Cumberland Street ...		2	Florence Street ...	3	5	Gullet, St. Mary's ...		
Curzon Street ...	2	1	Fordrough Lane ...			Gullet, Deritend ...		
Cuthbert Road ...		4	Fordrough Street ...	1	4	Gullet, St. Thomas's ...		
			Ford Street ...	1	11			
D			Forge Street ...			H		
Dalton Street ...		1	Forster Street ...		1	Hadley Street ...	1	8
Dale End ...	2	6	Foundry Road ...	1	4	Hagley Road ...	1	16
Darnley Road ...			Fowler Street ...		1	Halberton Street ...		2
Dart Street ...			Fox Street ...		4	Hall Street ...		2
Dartmouth Street ...	7	26	Francis Road ...		6	Hampton Street ...	2	20
Darwin Street ...	5	26	Francis Street ...		14	Hampton Row ...		1
Dawson Street ...	1	1	Frankfort Street ...	3	15	Handsworth New Road ...	1	
Dean Street ...		6	Franklin Street ...		2	Hanley Street ...	5	10
Denbigh Street ...			Frank Street ...	1	5	Hanover Street ...		4
Dearman Road ...		2	Frederiek Road ...		4	Harborne Road ...		6
Derby Street ...	1	10	Frederick Street ...		1	Harding St., St. George's ...		
Devon Street ...	3	14	Freeman Road ...	1	9	Harding St., All Saints' ...		1
Devonshire Street ...	2	13	Freeman Street ...		1	Harford Street ...		1
Digbeth ...	6	20	Freeth Street ...	1	12	Harrison's Road ...		
Digby Street ...	1	2	Friston Street ...	5	18	Hatchett Street ...	1	16
Dixon Road ...		5				Hawkes Street ...		15
Doe Street ...		2	G			Hawthorn Road ...		
Dolmau Street ...		8	Galton Street ...		2	Heath Mill Lane ...	4	16
Dolobran Road ...	1	9	Garbett Street ...	4	21	Heath Street South ...	6	25
Don Street ...	1	4	Garrison Lane ...	6	46	Heaton Street ...	2	20
Dora Road ...			Garrison Street ...	2	21	Helena Street ...		
Dorset Road ...			Gas Street ...			Heneage Street ...	8	38
Dover Street ...			Geach Street ...	1	8	Henley Street ...		9
Dr. Johnson Passage ...			Gee Street ...	2	4	Henn's Waik ...		4
Drury Lane ...			Gem Street ...			Henrietta Street ...		1
Dryden Road ...			George Road ...	1	2	Henry Street ...		15
Duchess Road ...		2	George Street ...	1	6	Herbert Road ...		21
Duddleston Mill Road ...		14	George Street West ...	5	15	Hermitage Road ...		
Duddleston Row ...	1	8	Gibb Street ...	2	1	Hiekman Road ...		5
Dudley Road ...	1	22	Gillott Road ...		4	Hiek Square ...		
Dudley Street ...	1		Gladstone Road ...		3	Hick Street ...	1	8
Dugdale Street ...	2	6	Glebe Street ...	2	2	Highfield Road ...		1
Duke Street ...	2	6	Gloucester Street ...		1	Highgate Road ...	1	11
Dymoke Street ...	1	17	Glover's Road ...	2	3	Highgate Place ...		1
			Glover Street ...	3	11	Highgate Square ...		
E			Godwin Street ...	1	2	Highgate Street ...	3	25
Earl Street ...			Golden Hilloek Road ...		3	High Park Street ...		5
Eastern Road ...			Gooch Street ...		16	High Street ...	4	4
Easy Row ...			Goode Street ...	1	2	High Street, Bordesley ...	1	
Eden Place ...			Goodman Street ...			High Street, Deritend ...	2	20
Edgbaston Road ...			Goodrick Street ...	2	3	Hill Street ...	1	6
Edgbaston Park Road ...			Gopsall Street ...		2	Hinekley Street ...		1
Edgbaston Street ...		1	Gordon Street ...	1	5	Hingeston Street ...	6	28
Edmund Street ...			Gosta Green ...		2	Hob Moor Road ...		1
Edward Road ...			Gough Road ...		6	Hoekley Hill ...	1	5
Edward Street ...	1	13	Gough Street ...	1	5	Hoekley Street ...		9
Elkington Street ...		3	Graee Road ...		8	Holborn Hill ...		7
Ellen Street ...	6	20	Grafton Road ...			Holland Street ...	3	6
Ellis Street ...		3	Graham Street ...		6	Holliday Street ...	1	8
Elvetham Road ...		1	Grange Road ...	1	10	Hollier Street ...		6
			Grantham Road ...		2	Holloway Head ...	1	10

STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
O								
Oakley Road ...		2	Ratcliff Place ...		1	Sheep Street ...		6
Old Cross Street ...		12	Ratcliff Street ...		11	Shefford Road ...		4
Old Meeting Street ...			Ravenhurst Street ...	2	1	Sherborne Street ...	8	22
Old Square ...			Rawlins Street ...	1	13	Sherlock Street ...	4	40
Oliver Road ...		2	Rea Street ...		4	Shut Lane ...		2
Oliver Street ...	1	3	Rea Street South ...		2	Sir Harry's Road ...		2
Oozells Street ...			Regent Parade ...		6	Skinner Lane ...	1	2
Oozells Street North ...		3	Regent Park Road ...	2	6	Skinner Street ...		3
Ormond Street ...		7	Regent Place ...		2	Slaney Street ...	1	3
Osler Street ...	7	24	Regent Row ...		6	Slough Lane ...		
Oughton Place ...		3	Regent Street ...	1	1	Smallbrook Street ...		5
Outlet Road ...			Reservoir Retreat ...		1	Smithfield Passage ...	1	2
Owen Street ...	2	5	Reservoir Road ...		4	Smithfield Street ...		
Oxford Street ...		4	Richard Street ...	1	21	Smith Street, St. George's ...	1	10
Oxygen Street ...		4	Richmond Hill Road ...		2	Smith Street, Duddleston ...		1
			River Street ...		2	Snow Hill ...		13
			Robert Road ...	1	3	Soho Road ...	4	10
			Rocky Lane ...	3	12	Somerset Road ...		2
			Rodway Street ...	1	3	Somerset Street ...		4
			Rope Walk ...			South Road ...	3	6
			Rosalie Street ...		3	Spark Street ...		3
			Rotton Park Road ...		2	Speaking Stile Walk ...		1
			Rotton Park Street ...		1	Speedwell Road ...		2
			Rowland Street ...		2	Spencer Street ...		4
			Rupert Street ...	3	14	Spiceal Street ...		1
			Russell Street ...			Spon Terrace ...		
			Ruston Street ...	1	7	Spooner Street ...		2
			Ruston Street North ...	3	17	Springfield Street ...	4	15
			Rutland Road ...		1	Spring Hill ...	2	16
			Ryder Street ...		4	Spring Hill Passage ...		2
			Ryland Road ...		10	Spring Road ...		3
			Ryland Street ...	4	12	Spring Street ...		4
						Spring Vale ...		
P			S			Stafford Street ...		
Paddington Street ...	3	6	Salop Street ...		2	Staniforth Street ...	2	11
Pakenham Road ...			Saltley Road ...	2	9	Stanley Road ...		2
Palmer Street ...	10	12	Saltley Street ...	1	2	Stanhope Street ...	1	1
Parade ...		2	Sampson Road ...		4	Stanmore Road ...		2
Paradise Street ...		1	Sampson Road North ...	1	1	Station Road ...		
Parker Street ...	1	10	Sand Pits ...		1	Station Street ...		1
Park Lane ...		1	Sand Street ...		3	Stella Street ...	1	5
Park Road, All Saints ...	3	34	Sandon Road ...			Steelhouse Lane ...	2	9
Park Road, Edgbaston ...	1		Sandy Lane ...	4	8	Stephenson Place ...		1
Park Street ...	1	7	Sarah Street ...			Stephenson Street ...		
Parliament Street ...	1	8	St. Andrew's Road ...	5	16	Steward Street ...	3	16
Paternoster Row ...			St. Augustine's Road ...		1	Stirling Road ...	1	
Paxton Road ...	1	3	St. Clement's Road ...	2	5	Stoke Street ...		12
Pebble Mill Road ...			St. Cuthbert's Road ...			Stone Yard ...		
Peel Street ...		18	St. George's Crescent ...			Stoney Lane ...		
Penn Street, Deritend ...	1	5	St. George's Street ...	3	18	Stour Street ...	3	12
Penn Street, Duddleston ...	1	2	St. George's Place ...		2	Stratford Place ...		1
Perrot Street ...		3	St. George's Terrace ...			Stratford Road ...	2	9
Pershore Road ...	1	17	St. James' Place ...		4	Stratford Street ...	1	3
Pershore Street ...	1	13	St. James' Road ...		1	Stuart Street ...		4
Phillip Street ...			St. James' Street ...	2	5	Suffolk Street ...	1	19
Pickford Street ...	1	6	St. Luke's Road ...	3	15	Summerfield Crescent ...		2
Piddock Street ...		3	St. Mark's Street ...	4	20	Summerfield Road ...		6
Pigott Street ...	1	6	St. Martin's Lane ...			Summer Hill ...		2
Pinfold Street ...			St. Martin's Place ...		2	Summer Hill Road ...		2
Pitney Street ...		2	St. Martin's Row ...			Summer Hill Street ...	1	10
Pitt Street ...			St. Martin's Street ...		13	Summer Hill Terrace ...		4
Pitsford Street ...	1	8	St. Mary's Row ...		2	Summer Lane ...	5	50
Plough & Harrow Road ...		1	St. Mary's Street ...	1	4	Summer Row ...		2
Plume Street ...			St. Oswald's Road ...		2	Summer Road ...	1	10
Pope Street ...	5	10	St. Paul's Square ...		2	Summer Street ...		1
Poplar Avenue ...			St. Peter's Place ...			Sun Street ...	2	10
Porchester Street ...			St. Philip's Church Yard ...			Sun Street West ...	1	5
Porthope Road ...		5	St. Stephen's Street ...	1	3	Sutton Street ...		3
Portland Road ...		2	St. Vincent Street ...	6	25	Swallow Street ...		
Potter Street ...	1	1	Scholefield Street ...	3	26	Swan Passage ...		
Poultry ...			Scotland Passage ...			Sydenham Road ...		
Powell Street ...		1	Scotland Street ...		2	Sydney Road ...	1	3
Prescott Street ...	2	12	Scott Street ...	1				
Price Street ...	4	10	Severn Street ...	1	8			
Priestley Road ...	1	4	Seymour Street ...					
Prince Albert Street ...		6	Shadwell Street ...	1	6			
Princes Row ...		1	Shakespeare Road ...	1	14			
Princes Street ...			Sheepcote Lane ...		5			
Princess Road ...		6	Sheepcote Street ...	2	17			
Princip Street ...	1	5						
Priory Road ...		1						
Pritchett's Road ...								
Pritchett Street ...	5	32						
Proctor Street ...		7						
Prospect Row ...	1	2						
R						T		
Radnor Street ...		2				Talbot Street ...	1	11
Raglan Road ...						Talfourd Street ...	1	14
Railway Ter., Duddleston ...		3				Tanter Street ...		
Railway Ter., Nechells ...	1	10				Taylor Street ...	1	5
Rann Street ...		6				Temple Field Street ...		2

STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
Temple Row ...						Worcester Wharf ...		
Temple Row West ...			W			Wordsworth Road ...		5
Temple Street...		1				Wrentham Street ...		13
Tenby Street ...			Walter Street ...	3	5	Wright Street...	3	14
Tenby Street North ...		2	Ward Street ...	2	11	Wrottesley Street ...		
Tennant Street ...	3	19	Warner Street...	1	3	Wyndeliffe Road ...		2
Theodore Street ...	1	9	Warstone Lane ...	3	14	Wyndham Road ...		3
Theresa Road ...		1	Warstone Parade ...		1	Wynn Street ...	1	12
Thimble Mill Lane ...	1	11	Warwick Passage ...					
Thomas Street...	1	4	Warwick Street ...	4	17	X		
Thorp Street ...	1	1	Washington Street ...		8			
Tillingham Street ...	1	3	Waterloo Street ...		1			
Tindal Street ...		6	Water Street ...		2			
Tower Street ...	4	28	Watts Road ...					
Tratfalgur Road ...			Waterworks Road ...	1	9			
Trent Street ...	2	12	Watery Lane ...	6	24			
Trevor Street ...		12	Weaman Row ...		1			
Trinity Terrace ...			Weaman Street ...	3	18			
Tudor Street ...		6	Wellesley Street ...	3	3	Y		
Turner Street ...	4	5	Wellington Passage ...			Yardley Road ...		
Tyndall Street...		9	Wellington Road ...	1	4	Yew Tree Road ...		1
			Wellington St. W's'n Gr ...	2	8	York Passage ..		
U			Wellington St., Icknield Sq.			York Road ...		1
Unett Street ...	2	16	Well Lane ...			York Street ...		2
Union Passage ...		1	Well Street ...	2	27			
Union Street ...		1	Westbourne Road ...		1	Z		
Union Terrace ...			Western Road...		1			
Upper Dean Street ...		2	Westfield Road ...					
Upper Gough Street ...	2	10	Westley Street ...	4	2			
Upper Highgate Street ...		13	Weston Street...		3			
Upper Hoekley Street...			Wharf Lane ...	2	2			
Upper Marshall Street...	1	2	Wharf St., All Saints ...	1	2			
Upper Mill Lane ...			Wharf St., St. Thomas's ...					
Upper Priory ...		1	Wharton Street ...		3			
Upper Ryland Road ...		8	Wheeler Street ...	1	18	ADDENDA.		
Upper Trinity Street ...	6	6	Wheele's Lane ...	3	1	Canals ...		20
			Wheele's Road ...		3	Railways ...		8
			White Lion Passage ...			Not stated ...		5
			White Road ...		5			
			Whitmore Road ...		8			
			Whitmore Street ...		11			
V			Whittall Street ...		2			
Varna Road ...	1	4	Wiggin Street...		3			
Vaughton Street ...	3	13	William Edward Street ...	2	6			
Vaughton Street South ...		2	William Henry Street ...		5			
Vauxhall Grove ...		3	William St., St. Thomas' ...	6	27			
Vauxhall Road ...	1	14	William Street, Deritend ...		2	AT INSTITUTIONS.		
Vauxhall Street ...		5	William Street North ...	2	6	General Hospital ...	13	293
Ventnor Road ...		1	Willis Street ...	2	9	Queen's Hospital ...	6	168
Vere Street ...	1	7	Willow Avenue ...			Children's Hospital ...	14	66
Viaduct Street...			Wilton Street ...	1	11	Workhouse ...	19	716
Vicarage Road ...	1		Windmill Street ...		2	Asylum ...		104
Victoria Grove ...		3	Windsor Street ...	4	25	Gaol ...		3
Victoria Street ...	1	6	Winson Green Road ...	1	10	Eye Hospital ...		1
Villa Street ...		6	Winson Street...		10	Blind Institution ...		
Villiers Street ...		1	Witton Street ...	2	7	City Hospital ...	167	6
Vine Street ...		1	Wolseley Street ...	1	1	Homœopathic Hospital...		9
Vittoria Street...		6	Woodbourne Road ...			Orthopædic Hospital ...		
Vyse Street ...		2	Woodecock Street ...		12			
			Wood Street ...		1			
			Worcester Street ...		2	TOTALS	1297	8264

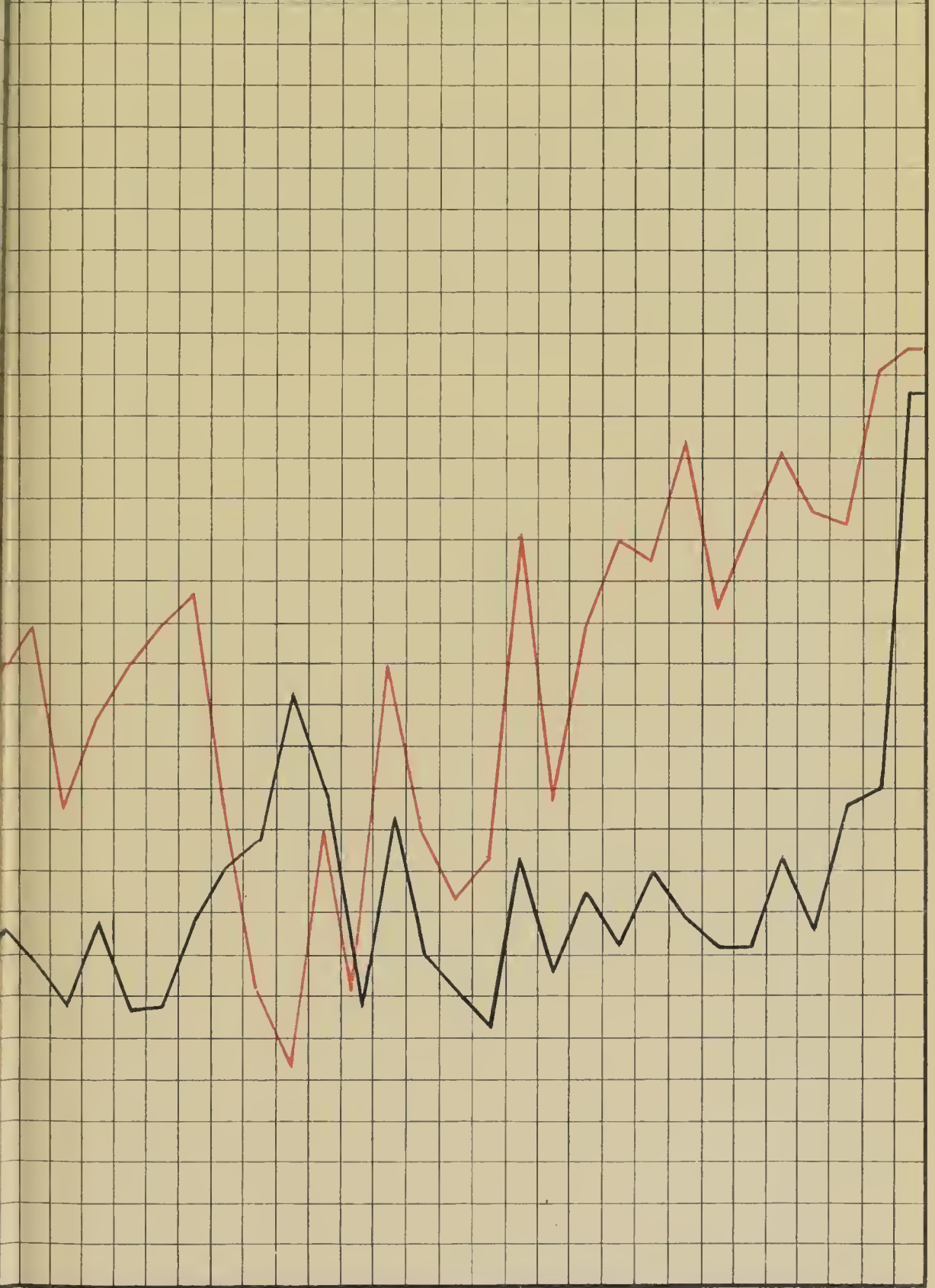
Grand Total ... 9561





SHOWN IN WEEKLY PERIODS THUS _____
 DEATH " " " _____

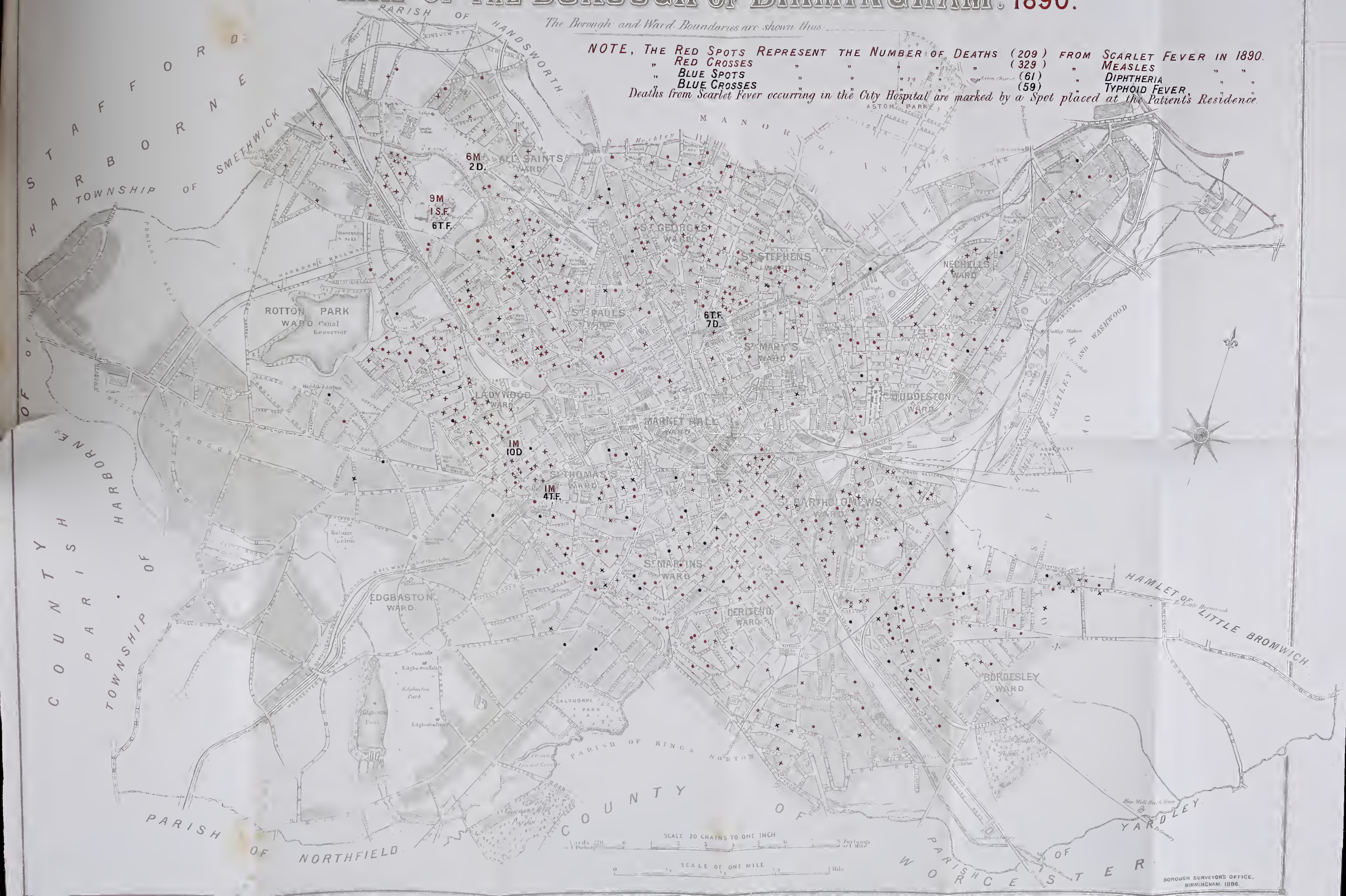
JULY							AUGUST							SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53														



MAP OF THE BOROUGH OF BIRMINGHAM. 1890.

The Borough and Ward Boundaries are shown thus:

NOTE, THE RED SPOTS REPRESENT THE NUMBER OF DEATHS (209) FROM SCARLET FEVER IN 1890.
 " RED CROSSES " " " " (329) " MEASLES " "
 " BLUE SPOTS " " " " (61) " DIPHTHERIA " "
 " BLUE CROSSES " " " " (59) " TYPHOID FEVER " "
 Deaths from Scarlet Fever occurring in the City Hospital are marked by a Spot placed at the Patient's Residence.





REPORT
ON
ADULTERATION.

CITY ANALYST'S LABORATORY,
THE COUNCIL HOUSE, BIRMINGHAM,
March 6th, 1891.

TO THE HEALTH COMMITTEE.

MR. CHAIRMAN AND GENTLEMEN,

I beg to report that during the year 1890 I analysed 927 samples of food and drugs. With the exception of 20 they were submitted to me by Mr. Parker, Inspector of Nuisances.

The following table shows the number of samples analysed and the number found to be adulterated:—

ARTICLE.	TOTAL NUMBER OF SAMPLES ANALYSED.				NUMBER FOUND ADULTERATED.			
Milk	180	...	...	...	40	...	...	...
Butter	64	...	...	...	9	...	...	...
Beer	48	...	...	...	2	...	...	...
Bread	48	...	...	...	0	...	...	...
Oatmeal	46	...	...	...	0	...	...	...
Coffee	31	...	...	...	11	...	...	...
Cream of Tartar	31	...	...	...	0	...	...	...
Flour	31	...	...	...	0	...	...	...
Pepper	30	...	...	...	2	...	...	...
Cheese	22	...	...	...	0	...	...	...
Linseed Meal	20	...	...	...	13	...	...	...
Arrowroot	18	...	...	...	0	...	...	...
Glycerine	18	...	...	...	1	...	...	...
Mustard	18	...	...	...	0	...	...	...
Vinegar	15	...	...	...	0	...	...	...
Bicarbonate of Potash	13	...	...	...	2	...	...	...
Cubebs... ..	13	...	...	...	6	...	...	...
Compound Tincture of Benzoin	13	...	...	...	3	...	...	...
Carbonate of Magnesia	12	...	...	...	0	...	...	...
Lard	12	...	...	...	0	...	...	...
Rhubarb	12	...	...	...	1	...	...	...
Tartaric Acid	12	...	...	...	0	...	...	...
Tincture of Iodine	12	...	...	...	4	...	...	...

The subjoined list gives particulars of the adulterated samples :—

NO.	DATE.	ARTICLE.	REMARKS.
1—	Jan. 14th ...	Saffron ...	Adulterated with 19 % of dyed Calendula florets. Fined 40/- and costs.
6—	" 14th ...	Saffron ...	Adulterated with 18 % of dyed Calendula florets. Fined 40/- and costs.
7—	" 16th ...	Milk ...	Adulterated with 26 % of water. Fined 10/- and costs.
11—	" 16th ...	Milk ...	Adulterated with 4 % of water, and deprived of 6 % of its fat. Cautioned by Health Sub-Committee.
12—	" 16th ...	Milk ...	Adulterated with 14 % of water. Fined 10/- and costs.
15—	" 16th ...	Sal Volatile ...	Deficient of 37 % of the proper strength. Fined £3 and costs.
17—	" 16th ...	Milk ...	Adulterated with 12 % of water. Cautioned by Health Sub-Committee.
27—	" 22nd ...	Milk ...	Deprived of 25 % of its fat.
29—	" 28th ...	Milk ...	Adulterated with 4 % of water.
33—	" 30th ...	Milk ...	Adulterated with 5 % of water. Cautioned by Health Sub-Committee.
35—	" 30th ...	Milk ...	Deprived of 16 % of its fat. Cautioned by Health Sub-Committee.
61—	Feb. 24th ...	Cubebs ...	Adulterated with starch.
71—	" 25th ...	Linseed Meal ...	Adulterated with starch.
76—	" 25th ...	Rhubarb ...	Adulterated.
79—	" 25th ...	Cubebs ...	Adulterated with Piper crassipes.
83—	" 25th ...	Cubebs ...	Adulterated with starch.
86—	" 28th ..	Linseed Meal ...	Adulterated with starch.
89—	" 28th ...	Citric Acid... ..	Contained a trace of lead.
92—	" 28th ...	Linseed Meal ...	Adulterated with starch.
109—	" 28th ...	Tincture of Rhubarb	Adulterated with insoluble vegetable matter.
110—	" 28th ...	{ Ammoniated Tincture of Opium }	Consisted of laudanum.
113—	" 28th ...	Tincture of Rhubarb	Adulterated with water.
114—	" 28th ...	{ Ammoniated Tincture of Opium }	Contained no benzoic acid.
116—	Mar. 3rd ...	Cubebs ...	Adulterated with stalks.
151—	" 7th ...	{ Compound Tincture of Benzoin }	Deficient of half the proper strength.
153—	" 7th ...	{ Compound Tincture of Benzoin }	Deficient of half the proper strength.
154—	" 8th ...	Syrup of Poppies ...	Adulterated with 13 % of water.
157—	" 8th ...	Syrup of Poppies ...	Adulterated with 14 % of water.
161—	" 8th ...	Syrup of Poppies ...	Adulterated with 40 % of water.
165—	" 8th ...	Syrup of Poppies ...	Adulterated with 23 % of water.
166—	" 8th ...	Syrup of Senna ...	Adulterated with 24 % of water.
167—	" 8th ...	Syrup of Senna ...	Adulterated with 19 % of water.

NO.	DATE.	ARTICLE.	REMARKS.
209—	Mar. 14th ...	Linseed Meal ...	Adulterated with starch.
210—	" 14th ...	Linseed Meal ...	Adulterated with starch.
211—	" 14th ...	Linseed Meal ...	Adulterated with starch.
212—	" 14th ...	Linseed Meal ...	Adulterated with starch.
213—	" 14th ...	Linseed Meal ...	Adulterated with starch.
217—	" 14th ...	Cubebs ...	Adulterated with starch.
223—	" 14th ...	Cubebs ...	Adulterated with starch
228—	" 15th ...	Paregoric ...	Contained no opium.
230—	" 15th ...	Paregoric ...	Contained too little spirit and no oil of Anise.
235—	" 15th ...	Paregoric ...	Adulterated with Glycerine, and contained neither spirit nor oil of Anise.
236—	" 15th ...	Wood Charcoal ...	Adulterated with 10 % of mineral matter.
238—	" 15th ...	Wood Charcoal ...	Adulterated with 10 % of mineral matter.
242—	" 18th ...	Citric Acid ...	Contained a trace of lead.
247—	" 18th ...	Citric Acid ...	Contained a trace of lead.
249—	" 18th ...	Citric Acid ...	Contained lead.
253—	" 18th ...	Citric Acid ...	Contained lead.
267—	" 20th ...	{ Bicarbonate of Potash }	Consisted of Carbonate of potash.
269—	" 20th ...	Linseed Meal ...	Adulterated with starch.
273—	" 20th ...	Tincture of Iodine	Deficient in iodine.
275—	" 20th ...	Tincture of Iodine	Deficient in iodide of Potassium.
277—	" 20th ...	Tincture of Iodine	Deficient in spirit.
279—	" 20th ...	Tincture of Iodine	Deficient in iodine.
311—	Apr. 10th ...	Milk... ..	Adulterated with 9 % of water. Cautioned by Health Sub-Committee.
317—	" 10th ..	Milk.. ...	Adulterated with 4 % of water, and deficient in fat. Cautioned by Health Sub-Committee.
319—	" 10th ...	Milk... ..	Adulterated with 4 % of water, and deficient in fat. Cautioned by Health Sub-Committee.
327—	" 14th ...	Coffee ...	Adulterated with chicory.
336—	" 15th ...	Milk... ..	Adulterated with 11 % of water, and deprived of 10 % of its fat. Summons dismissed.
337—	" 15th ...	Milk... ..	Adulterated with 19 % of water. Fined £2 and costs.
345—	" 15th ...	Milk... ..	Adulterated with 17 % of water. Fined 5s. and costs.
350—	" 21st ...	Ale	Contained 13 grains of salt per gallon more than is approved by the Excise.
352—	" 21st ...	Ale	Contained 13 grains of salt per gallon more than is approved by the Excise.
368—	" 21st ...	Milk... ..	Adulterated with 3·5 % of water, and deficient in fat. Cautioned by Health Sub-Committee.
370—	" 21st ...	Milk... ..	Deprived of 23 % of its fat. Cautioned by Health Sub-Committee.
371—	" 25th ...	Paregoric ...	Adulterated with 30 % of glycerine, and contained neither alcohol nor oil of anise. Fined £2 and costs.

NO.	DATE.	ARTICLE.	REMARKS.
373—	Apr. 25th ...	{ Compound Tincture of Benzoin }	Contained only 41 % of the proper ingredients Fined £2 and costs.
375—	" 25th ...	Linseed Meal ...	Adulterated with 10 % of starch. Cautioned by Health Sub-Committee.
376—	" 25th ...	Linseed Meal ...	Adulterated with 16 % of starch. Cautioned by Health Sub-Committee.
377—	" 25th ...	{ Compound Tincture of Rhubarb }	Adulterated with 30 % of water. Cautioned by Health Sub-Committee.
378—	" 25th ...	Linseed Meal ...	Adulterated with 12 % of starch. Cautioned by Health Sub-Committee.
379—	" 25th ...	Linseed Meal ...	Adulterated with 13 % of starch. Cautioned by Health Sub-Committee.
381—	" 29th ...	Milk... ..	Adulterated with 5 % of water, and deprived of 10 % of its fat. Cautioned by Health Sub- Committee.
384—	" 29th ...	Milk... ..	Adulterated with 8 % of water. Cautioned by Health Sub-Committee
386—	" 29th ...	Milk... ..	Adulterated with 5 % of water. Cautioned by Health Sub-Committee.
388—	" 29th ...	Milk... ..	Adulterated with 6 % of water, and deprived of 7 % of its fat. Cautioned by Health Sub- Committee.
395—	May 15th ...	Butter ...	Consisted of margarine.
396—	" 15th ...	Butter ...	Consisted of margarine.
398—	" 15th ...	Butter ...	Consisted of margarine.
399—	" 17th ...	Butter ...	Consisted of margarine. Fined £2 and costs.
402—	" 17th ...	Butter ...	Consisted of margarine. Fined 10s. and costs.
408—	" 19th ...	Butter ...	Consisted of margarine. Fined 20s. and costs.
410—	" 21st ...	{ Bicarbonate Potash }	of } Consisted of carbonate of potash. Cautioned by Health Sub-Committee.
412—	" 21st ...	Margarine ...	Consisted of margarine ; not labelled. Cautioned by Health Sub-Committee.
415—	" 21st ...	Margarine ...	Consisted of margarine ; not labelled. Fined 5s. and costs.
529—	July 10th ...	Milk... ..	Deprived of 21 % of its fat. Fined 5s. and costs.
530—	" 10th ...	Milk... ..	Adulterated with 6 % of water, and deprived of 7 % of its fat.
534—	" 10th ...	Milk... ..	Adulterated with 6 % of water.
554—	" 29th ...	Coffee ...	Adulterated with chicory.
559—	" 29th ...	Coffee ...	Adulterated with chicory.
560—	" 29th ...	Coffee ..	Adulterated with chicory.
562—	" 29th ...	Coffee ...	Adulterated with chicory.
564—	" 29th ...	Coffee ...	Adulterated with chicory.
633—	Aug. 14th ...	Butter ...	Consisted of Margarine.
636—	" 14th ...	Milk... ..	Adulterated with 10 % of water.
637—	" 14th ...	Milk... ..	Adulterated with 10 % of water.
638—	" 14th ...	Milk... ..	Adulterated with 10 % of water.

NO.	DATE.	ARTICLE.	REMARKS.
669—	Sept. 2nd ...	Butter ...	Consisted of Margarine.
689—	" 22nd ...	Coffee ...	Adulterated with chicory.
695—	" 22nd ..	Coffee ...	Adulterated with chicory.
700—	" 22nd ...	Coffee ...	Adulterated with chicory.
709—	" 22nd ...	Coffee ...	Adulterated with chicory.
716—	" 25th ...	Milk ...	Adulterated with 12 % of water. Cautioned by Health Sub-Committee.
753—	Oct. 24th ...	Butter ...	Consisted of Margarine. Fined £5 and costs.
763—	Nov. 1st ...	Milk ...	Adulterated with 13 % of water. Fined £10 and costs.
776—	" 11th ...	Coffee ...	Adulterated with chicory.
783—	" 11th ...	White Pepper ...	Adulterated with mineral matter.
805—	" 17th ...	Sweet Spirit of Nitre	Adulterated with 49 % of water. Cautioned by Health Sub-Committee.
809—	" 20th ...	Milk... ..	Adulterated with 8 % of water. Cautioned by Health Sub-Committee.
811—	" 20th ...	Milk... ..	Deprived of 12 % of its fat. Cautioned by Health Sub-Committee.
821—	" 22nd ...	Borax ...	Adulterated with 20 % of carbonate of soda.
825—	Dec. 2nd ...	White Pepper	Adulterated with over 4 % of mineral matter. Cautioned by Health Sub-Committee.
826—	" 2nd ...	Spirit of Nitrous Ether	Deficient in Nitrous Ether. Cautioned by Health Sub-Committee.
844—	" 11th ...	Milk... ..	Adulterated with 5.5 % of water. Cautioned by Health Sub-Committee.
845—	" 11th ...	Milk... ..	Adulterated with 4.5 % of water. Cautioned by Health Sub-Committee.
846—	" 11th ...	Milk... ..	Deprived of 18 % of its fat. Cautioned by Health Sub-Committee.
848—	" 11th ...	Milk... ..	Deprived of 18 % of its fat. Cautioned by Health Sub-Committee.
867—	" 15th ...	Glycerine ...	Contained a trace of arsenic.
897—	" 22nd ...	Seidlitz Powder	Adulterated with carbonate of soda, and contained no Rochelle salt. Cautioned by Health Sub-Committee.
913—	" 30th ...	Milk... ..	Adulterated with 5 % of water, and deprived of 20 % of its fat. Fined 10/- and costs.
915—	" 30th ...	Milk... ..	Adulterated with 19 % of water.
916—	" 30th ...	Milk... ..	Adulterated with 6 % of water, and deprived of 5 % of its fat. Cautioned by Health Sub-Committee.
918—	" 30th ...	Milk... ..	Adulterated with 11 % of water. Fined 10/- and costs.
919—	" 30th ...	Milk... ..	Adulterated with 10 % of water. Fined 5/- and costs.
920—	" 30th ...	Milk... ..	Deprived of 22 % of its fat. Fined 10/- and costs.

In the annexed Table will be seen the total number of articles analysed, and the percentages of adulteration in some of the larger classes of food, etc., in each of the last 18 years :—

Years.	Number of Samples Analysed.	Total Percentage of Adulteration	Percentage of Adulteration of undermentioned Articles.								
			Milk.	Bread and Flour.	Butter.	Groceries.	Wines.	Beer.	Spirits.	Drugs.	Other Articles
1873	87	65	75	0	0	87	—	—	—	100	100
1874	79	42	67	0	66	16	—	0	100	—	—
1875	73	38	55	0	—	36	100	—	—	25	—
1876	92	33	30	—	—	19	—	33	25	36	62
1877	176	40	58	0	—	12	—	21	36	26	31
1878	158	21	57	0	0	10	0	13	26	—	—
1879	168	25	60	0	0	5	—	16	—	—	0
1880	178	21	46	0	0	0	—	0	—	—	0
1881	197	23	54	0	36	8	—	0	50	0	0
1882	321	18	36	0	25	10	—	0	—	—	0
1883	151	38	47	0	30	42	100	17	29	100	—
1884	816	21	41	1	40	23	—	0	40	21	0
1885	914	13	24	0	40	22	—	2	0	7	0
1886	876	9	18	0	23	10	—	6	20	—	0
1887	818	12	15	0	52	12	—	1	0	0	40
1888	753	11	18	0	20	8	—	14	0	0	23
1889	873	16	19	2	32	14	0	6	0	16	27
1890	927	13	22	0	14	6	—	4	—	19	0

Of the 927 samples analysed 123, or 13 per cent., were not of the proper quality. The percentage of adulteration is lower than in 1889, but rather higher than in other years since 1885.

The Milks examined numbered 180 and 40, or 22 per cent. Milk. of them were found to be adulterated. To 22 of them various quantities of water had been added, and eight others had been deprived of a part of their cream. In 10 instances both watering and skimming had been practised.

- Butter.** Of the 64 samples bought as Butter nine were found to consist of margarine, a wholesome but much cheaper article. One vender was prosecuted, and another cautioned for selling Margarine without having properly labelled it as such.
- Ale.** An excess of salt was found in two of the Ales; and
Coffee. chicory had been added to 11 samples sold as Coffee.
- Pepper.** In two of the samples of White Pepper there was more mineral matter than is natural to this article.
- Linseed Meal.** Twenty samples of Linseed Meal were analysed, and no less than 13 of them proved to be adulterated with starch.
- Drugs.** One sample of Glycerine contained a trace of arsenic. In two instances when Bicarbonate of Potash was asked for the article supplied proved to be carbonate of potash, a totally different substance. Six samples of Cubebs were adulterated, four with starch, one with stalks, and one with "piper crassipes." Three samples of Tincture of Benzoin were much below the proper strength; and one of Powdered Rhubarb was adulterated. Four samples of Tincture of Iodine were below the proper strength, two being deficient in iodine, one in spirit, and one in iodide of potassium. Traces of lead were discovered in five of the samples of Citric Acid. Of the nine samples of Paregoric one contained no opium, another was deficient in spirit and devoid of oil of anise, and two others were adulterated with glycerine and contained neither spirit nor oil of anise. A sample of Sal Volatile was deficient of 37 per cent. of the strength prescribed by the British Pharmacopœia. Two samples of Saffron contained considerable quantities of dyed calendula florets. Seven samples of Sweet Spirits of Nitre were examined, one was deficient in nitrous ether, and one was adulterated with nearly 50 per cent. of water. Two samples of Tincture of Rhubarb had been watered, and one other contained insoluble vegetable matter. One of the Seidlitz Powders contained an excess of carbonate of soda and no Rochelle salt. From 13 to 40 per cent. of water had been added to four of the samples of Syrup of Poppies, and two samples of Syrup of Senna had been similarly tampered with. An excessive quantity of mineral matter was found in two of the Wood Charcoals; while of the three samples of Ammoniated Tincture of Opium one consisted of laudanum, and another contained no benzoic acid. The only sample of Borax analysed contained 20 per cent. of carbonate of soda.

The samples not commented on were genuine, or nearly so.

I remain, Mr. Chairman and Gentlemen,

Your obedient Servant,

ALFRED HILL, M.D., F.I.C.,

City Analyst.

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